LAPORAN PROJEK ILMIAH TAHAP AKHIR I
WXES 3181

NEIGHBOURHOOD WATCH COMMUNITY PORTAL: LOCAL RESIDENTIAL AREA

-EngAnnWatch-

Lim Choon Hoe
WEK 020104
SESI 2002 2003

Supervisor

Assoc. Prof. Salimah Mokhtar

This report is proposed to
Faculty of Computer Science and Information Technology
University of Malaya

As part of the requirements for
Bachelor of Computer Science degree

Abstract

-EngAnnWatch- is a web based system that promises quick and efficient ways to strengthen Taman Eng Ann neighbourhood watch. The entire system provides interactive information to build a happy living home for residents. -EngAnnWatch- is another way for residents to communicate while they are busy with their daily duties.

The objectives of -EngAnnWatch- are to create a virtual space for Taman Eng Ann to share information for every aspect like security, activities, events, information and so forth. The user interface design is target at non- expert computer users to widen the scope of users.

Rapid Application Development model is used to develop -EngAnnWatch-. The tools involved in the development of -EngAnnWatch- are Macromedia Dreamweaver MX, Microsoft IIS, Adobe Photoshop 7.0, Microsoft office XP Access Database, Word, Visio, Macromedia Flash MX 2004, Microsoft Visual Studio .NET, and .NET framework.

It is hope that -EngAnnWatch- will offer more knowledge and information as well as promote the importance of e-neighbourhood watch to the public. Getting to know crime definitions and preventions will make us aware of the damage done to ourselves and our lover at every second of our life. Important information are essential when we facing any emergency situation or disaster.

After all, human always seek for new solution especially the way to communicates. This is why -EngAnnWatch- is created; an interactive e-community.

Acknowledgements

-EngAnnWatch-'s development was carried out along with advises, assistance, contributions and ideas from various people.

First and foremost, I would like to extend my most sincere gratitude to Assoc. Prof. Salimah Mokhtar, my project supervisor whom has offered me with unlimited support, time and guidance.

Not the least, Pn. Suraya Hamid, my project moderator deserves as much gratitude for spending precious time to moderate my project and offering opinions that directly contributed towards the success of -EngAnnWatch-.

Thanks to the staff from the Faculty of Computer Science and Information Technology, University of Malaya for their wonderful co-operation and assistance in the development of -EngAnnWatch-.

Last but not least, I would like to thank all my wonderful friends and seniors for sharing their precious time and knowledge with me. Your motivations and supports are greatly appreciated. Thanks to everyone.

TABLE OF CONTENTS

List of Figures

Chapter 1:

Chapter 2:

Chapter 3:

Chapter 4:

Chapter 5:

List of Tables

Chapter 1: Introduction

-EngAnnWatch-

Neighbourhood Watch Community Portal

1.1 Project Background/Overview

When the world is evolving, degree of humanity is decreasing. In the other words, crime activities happen from time to time and more frequent. To fight against today's crime activities, current security method such as alarm system, homeguard, policeman, and so on are highly insufficient.

Today, an ever-increasing number of people are gaining access to the Internet, whether it is at home, at school, or at work. For some, the Internet is seen and used simply as a particular kind of tool; it is something we employ to research papers, browse the latest soccer stats, or to engage in commercial activities such as shopping for books or clothing. For others, however, the Internet is more than a tool; it is a medium for social interaction with other individuals.

An alternative method to mitigate crime activities using web-based technology which is frequently uses nowadays – 'Neighbourhood watch community portal'. Portal are a unique communication medium for they allow the creator to transmit information to a potentially large, anonymous mass audience, while at the same time allowing that audience to interact with the owner via the medium's personal communication mechanisms.

The system will be developed which name 'EngAnnWatch' is a web-based community portal to strengthen local security for a local residential area (Taman Eng Ann) – located at Klang, Selangor, Malaysia.

1.2 Statement of Research Problem

The problem of this study can be divided into 2 main categories as in Table 1. Another problem occurs when we try to define the relationship between these 2 categories. Research problem are usually stated as question, and often as hypothesis. A hypothesis is a prediction, a statement of what specific results or outcomes are expected to occur.

Human Aspect	Computer Aspect
Arising criminal on the prowl	Programming Language
Local Government	CASE Tools
Local Police/Ambulance/Fire Department	Latest Technologies
Residents	Portal Mobility
Neighbourhood security issue	Portal Efficiency
Connectivity among neighbors	

Table 1.1: Research Problem

Currently, the available security methods and systems at market are not enough to fight against today's criminals' activities. We need a Web-based portal where people can register say a mobile and the address and then anyone in the neighbourhood can login and warn their neighbour & the Police of any impending wood by criminal on the prowl. Information about local emergency department such as fire department, ambulance, police department and any other emergency response team is inadequate to local citizen. In other words, residents do not know where they can contact in case of

any disaster or accident happened. This system will provide essential information about what should do when an emergency happened.

Secondly, the relationship among neighbours nowadays is hardly established well. This portal brings everyone online in your village or neighbourhood closer by making them more contactable. Subscribers in the local area could be sent text messages with a description or other useful information. This would be much faster than waiting for people to read about it the next day or see it on the news.

On the other hand, which programming language, tools and latest technologies should be applied to develop this portal is one of the most important issues. Suitable, flexible, scalable, expandable, functionality, adaptable and manageable would be the most important factors.

There is an old saying 'Prevention is better than cure'. Connectivity among each other should be improved. Suspicious activity can be detected and prevention can be done before any bad things happen.

When we combine two categories in Table 1, we notice that how to use this portal and web-based technologies to secure and enhance local and physical security is the toughest task which is the purpose of "Neighbourhood Watch Community Portal".

1.3 Research Question

Generally, few questions about this system have been identified and will be answered when the final report and system successfully completed.

DESIGN: Design specification like hardware/software, CASE tools, Interface, animation, sounds and language. Which one is the most suitable and applicable? Which technology should be implied? What are the elements in this portal? How to design a friendly and useful interface? What color to suit back and front ground?

MODULE: A system is build from one or more modules. Module is a portion of a program that carries out a specific function and may be used alone or combined with other modules of the same program. How many modules are needed? Which modules are critical? Where to get ideas for modules? How to make all these modules work?

STRATEGY: Important or essential in relation to making this system success. What are the strategies o improve local security level? How to mitigate crime activities? How to make people more connectable? When will this portal available for them? How to make them more active in the forum?

1.4 Project Goals

-EngAnnWatch- is an interactive portal with high vision and goals. This system suitable for all level of age; contribute together for a happy living home. Below are the goals of this portal:

1. Have a site where people can register say a mobile and the address and then anyone in the neighbourhood can login and warn their neighbour & the Police of any impending wood by criminal on the prowl.
2. Brings everyone online in your village or neighbourhood closer by making them more contactable
3. To provide residents a site to share information about ongoing activities
4. To develop a user friendly interface for easy navigation purpose
5. To provide information about local emergency departments and the procedures to do when an emergency happened.
6. To strengthen the neighbourhoods watch logically using internet technologies.
7. Provides information on crime prevention.
8. Ultimately, to create an e-community for Eng Ann residents

1.5 Project Objectives

With the increasing popularity of the Internet as a medium of communication, individual access and use has also increased. Since the mid 1990s, personal Internet homepages have proliferated within the medium. This pilot study sought to strengthen neighbourhood watch program within Taman Eng Ann using web-based technology.

Currently, Taman Eng Ann is facing security treats, crime activities happens from time to time. Few methods had taken by the residents to mitigate incidents. But it's not enough. This e-community will become a good solution for Taman Eng Ann.

Besides, this system also provides information on crime prevention. Residents will be acquainted with wisdom knowledge about crime prevention from this portal. Give people advice on crime prevention, local police numbers and other useful information which allows information about suspicious behaviors, including that supplied by the police, to be flashed to watch members in a seventh of a second. This portal will help members of the community combat poaching, trespass, theft and drug-taking.

Another objective for this system is to provide information about the ongoing events within that area. Past, present and future activities or event will be available from this portal. This will encourage more residents to participate, getting known each other and lastly neighbour relationship improved.

Finally, relationship between local government and residents will be formed strongly and also relationship among neighbours. This system/portal makes people more connectable wherever they are.

1.6 Project Scope

Project scope define and specific project beginning and end points. Specific details (what's in the scope and what's out of scope). This system's scope covered 3 categories which is System Scope, User Scope, and Location Scope.

1.6.1 System scope

The implementation of this application would be limited to computers, web-based application technologies, information management, and strategic management. This work focuses principally on modeling the development of a community portal to strengthen neighbourhood watch.

1.6.2 User scope

The work of the research group encompasses the local area residents especially the owner of the house. Generally, all members of the family should take part in this portal. Tons of activities they can enjoy in this portal.

The users will be divided into 3 categories:

1. Administrator
2. Members
3. Guest

Each type of user has different access to this portal. Administrator has full access to the portal which means they can monitor, manage, and coordinate everything on this portal. Members are those who live in Taman Eng Ann. Members have less accessibility than Administrator but more accessibility than a Guest. This is because of the security

purpose. Guest only can view certain information from this portal. Guest does not have the right to post any forum and Guest has lowest accessibility.

1.6.3 Location scope

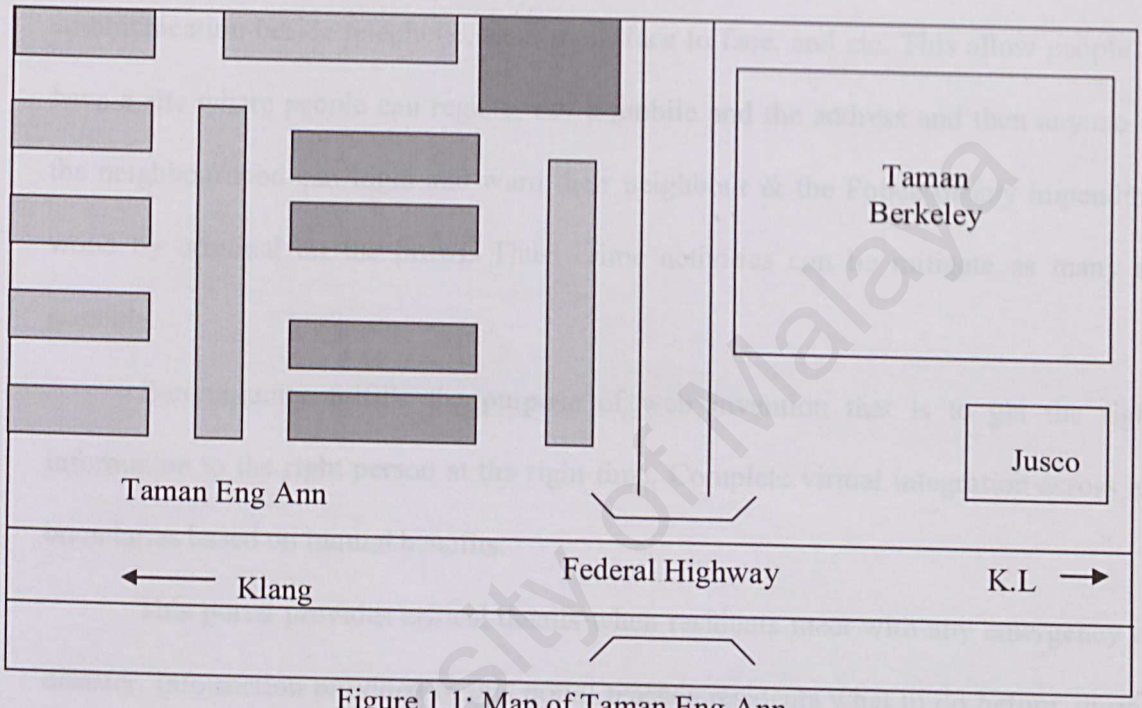


Figure 1.1: Map of Taman Eng Ann

Taman Eng Ann is a medium residential area located at the entrance of Klang town. Large across about 25Km². Total residents exceed 1000. It is a ideal place to live because is has everything such as business area, school, medical center, football field, shopping complex, market, playgrounds, and so on.

1.7 Project Importance/Significance

Since the advent of the Internet, the information highway phenomenon has given us access to virtually anything at a hyper speed of data transferring rate. "Neighbourhood Watch Community Portal" provides an alternative way of communication beside telephone, snail mail, face to face, and etc. This allow people to have a site where people can register say a mobile and the address and then anyone in the neighbourhood can login and warn their neighbour & the Police of any impending wood by criminal on the prowl. Thus, crime activities can be mitigate as many as possible.

E-community fulfills the purpose of web invention that is to get the right information to the right person at the right time. Complete virtual integration across all boundaries based on mutual benefits.

This portal provides critical details when residents meet with any emergency or disaster. Information provided in this portal teaches residents what to do before, during and after an unwanted incident happen.

This portal also has latest news and announcement about the ongoing activities so that residents can aware of that and participate if they have interest.

Finally, this system is critical for today's internet technology arena to build a happy living home.

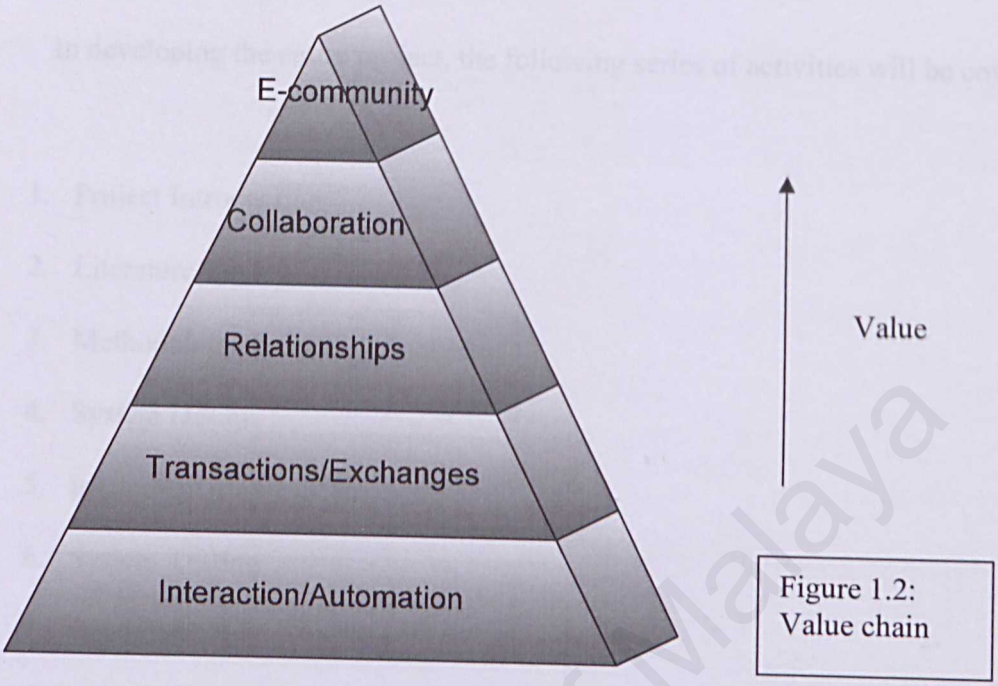


Figure 1.2:
Value chain

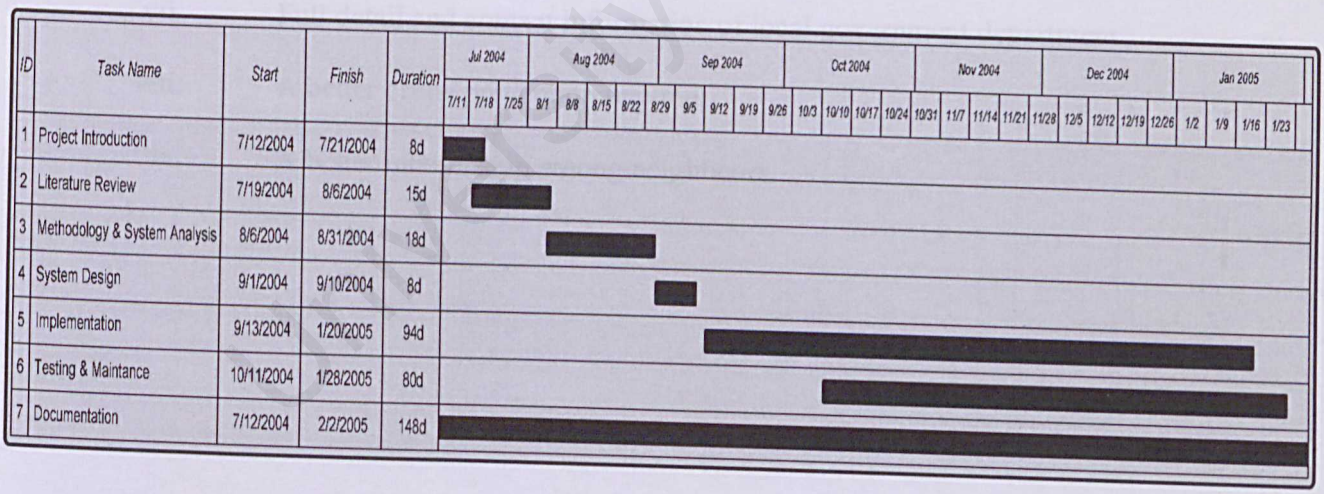
Source: The New Networked Economy
http://www.tice.ca/images/Part2.pdf

E-community ranked at the top of value chain. E-community will become the next natural evolution. It can bring, if we chose to build a vision and a blueprint of the future, a unique and tremendous competitive advantage on Neighbourhood Watch.

1.8 Project Schedule

In developing the entire project, the following series of activities will be covered: -

1. Project Introduction
2. Literature Review
3. Methodology & System Analysis
4. System Design
5. Implementation
6. System Testing
7. Documentation



ID	Task Name	Start	Finish	Duration
1	Project Introduction	7/12/2004	7/21/2004	8d
2	Literature Review	7/19/2004	8/6/2004	15d
3	Methodology & System Analysis	8/6/2004	8/31/2004	18d
4	System Design	9/1/2004	9/10/2004	8d
5	Implementation	9/13/2004	1/20/2005	94d
6	Testing & Maintance	10/11/2004	1/28/2005	80d
7	Documentation	7/12/2004	2/2/2005	148d

Figure 1.3: Gantt chart of Project Schedule

1.9 Outcome Statement

The mission of this system is to develop a functional community portal and have an ability to critically connect residents intended to increase neighbourhood watch efficiency and equity.

This Portal is expected to achieve the following:

i. Enhanced web-based community

ii. A mobile medium for communication

iii. System can perform some function to achieve Community Watch purpose

iv. System will be flexible to adapt with the dynamic world

v. An interactive web-based forum

vi. Information about the ongoing local activities and events

vii. Full detail and contact information of local government department.

viii. A better crime prevention scheme.

ix. A better relationship among neighbours.

1.10 Overview of Chapters

Chapter 1: Introduction

This chapter is the first section of this report. Introduction makes a person known to this system. It is a basic elementary briefing about this system.

Chapter 2: Literature Review

Literature review is a systematic search and analysis of published information that scholars and researchers have written on a topic. It is organized according to this research objective, thesis, or the problem/issue. Generally this literature review has two purposes:

(1) To describe work done on existing portal system and

(2) To evaluate this work.

Chapter 3: Methodology and System Analysis

This chapter defines a set of activities, method, best practices, deliverables, and automated tools that this system needs.

System analysis is a problem solving technique that decomposes a system into its component pieces for the purpose of studying how well those component parts work and interact to accomplish their purpose. System Analysis is the most critical phase for a project. During system analysis we learn about the existing portal system, come to understand its problem, define objective for improvement, and defined any ideal suggestion that fulfill requirements by any technical solutions.

Chapter 4: System Design

System Design provides the context for all the subsequent chapters by introducing the activities of system design. System design includes the preparation of detailed computer-based specification that will fulfill the requirements specified during system analysis and construction of system prototypes. With respect to information systems development, systems design consists of the configuration, procurements, and design and integration phases.

Chapter 2: Literature Review

-EngAnnWatch-

Neighbourhood Watch Community Portal

2.1 What is Literature Review

A literature review is an account of what has been published on a topic by accredited scholars and researchers where most of a dissertation's sources are cited. Previous research studies (usually found in professional journal articles) that have contributed to the field in a theme similar to what EngAnnWatch is will be reviewed. In writing the literature review, the purpose is to convey reader what knowledge and ideas have been established on Neighbourhood Watch Community Portal, and what their strengths and weakness are.

Literature review is a document containing reports and results of consultations to gather information about the planned project. The activities involved in the process of producing a good literature review are:

1) organized around and related directly to the topic
2) synthesize results into a summary
3) identify areas of controversy
4) formulate question that need further research

Literature review's main strength is to create a trust and confident to the readers regarding the developer's knowledge and understanding of the system. Readers will be able to get a clearer picture of reasons behind each action and decision taken in every phases.

2.2 Why we need Literature Review

The goals of a literature review have been defined as:

1. **To demonstrate a familiarity with a body of knowledge and establish credibility.** A review tells a reader that the researcher knows the research in an area and knows the major issues. A good review increases the reader's confidence in the researcher's professional competence, ability, and background.

2. **To show the path of prior research and how a current project is linked to it.** A review outlines the direction of research on a question and shows the development of knowledge. A good review places a research project in a context and demonstrates its relevance by making connections to a body of knowledge.

3. **To integrate and summarize what is known in an area.** A review pulls together and synthesizes different results. A good review points out areas where prior studies agree, where they disagree, and where major questions remain. It collects what is known up to a point in time and indicates the direction for future research.

4. **To learn from others and stimulate new ideas.** A review tells what others have found so that a researcher can benefit from the efforts of others. A good review identifies blind alleys and suggests hypotheses for replication. It divulges procedures, techniques, and research designs worth copying so that a researcher can better focus hypotheses and gain new insights.

2.3 Domain studies

Definition of crimes activities and type of it are well defined in this chapter. This chapter also studies the existing web based neighbourhood watch community portal with its functionality and problems related to it. Existing systems are put into study for further understanding of creating an interactive –EngAnnWatch-. Strengths and weaknesses of each existing system will be reviewed in detailed. Besides that, possible tools are studied in-depth to ensure the best results produced at the end of the day.

2.4 Today's Crime

Crime definition: A crime is an act which violates or breaking a law of a government, nation-state, or jurisdiction, for which there is no successful defense. There must be a simultaneous concurrence of both *actus reus* ("guilty action") and *mens rea* (guilty mind) for a crime to have been committed: except in crimes of strict liability.

Today's crime divided into few categories and each of the following type had been reported happened in Taman Eng Ann:

1) Burglary
2) Criminal damage
3) Drug offences
4) Fraud & forgery
5) Robbery
6) Sexual offences
7) Vehicle & other theft
8) Violence against the person
9) Other offences

2.4.1 Burglary

Where an offender enters a dwelling as a trespasser to steal, rape or commit grievous bodily harm.

1. Aggravated burglary in a dwelling (firearm, weapon or explosive)

2. Burglary in a building other than in a dwelling

3. Aggravated burglary in a building other than a dwelling

2.4.2 Criminal damage

1. Criminal damage to a dwelling.
2. Deliberately, or recklessly, destroying or damaging somebody else's property.
3. Racially or religiously aggravated criminal damage to a dwelling.
4. Criminal damage to a building other than a dwelling.
5. Criminal damage to a vehicle
6. Threatening or causing someone to fear that his or her property might be damaged; or possessing anything, without lawful excuse, intended to cause damage.
7. Arson. Deliberately destroying or damaging property, by fire

2.4.3 Drug offences

1) Possession of controlled drugs - Being found in possession of controlled drugs.

2) Trafficking in controlled drugs - Trading illegally in controlled drugs.

2.4.4 Fraud & forgery

1. **Fraud by company directors, etc.** - Deceiving members or creditors of a company about its affairs.

2. **False accounting** - Manipulating or falsifying an account, record or accounting document for personal gain.

3. **Cheque and credit card fraud** - Gaining possession of property, goods, services or money through the fraudulent use of a stolen or forged cheque or credit card.

4. **Other fraud** - Obtaining property by deception, with the intent to permanently deprive the owner of it.

5. **Bankruptcy and insolvency offences** - Misconduct in the course of winding up a bankruptcy or insolvency case.

6. **Forgery or use of false drug prescription** - Forging or attempting to use a false copy of a prescription.

7. **Other forgery** - Forgery of vehicle documentation and medical prescriptions are recorded separately.

2.4.5 Robbery

1. **Robbery of personal property** -The actual or threatened use of force during or immediately before the theft of personal property.
2. **Robbery of business property** - The actual or threatened use of force during or immediately before the theft of property belonging to a business.

2.4.6 Sexual offences

1. **Rape of a female.**

   A man commits rape if he has sexual intercourse with a female who does not consent to it or if he is reckless as to whether that female consents to it.

2. **Indecent assault on a female.**

   An assault, accompanied by an act of indecency (which may include indecent suggestions or gestures), performed on a female of any age.

3. **Other sexual offences.**

4. **Rape of a male.**

   A man commits rape if he has sexual intercourse with a male who does not consent to it or if he is reckless as to whether that male consents to it.

5. **Indecent assault on a male.**

   An assault, accompanied by an act of indecency (which may include indecent suggestions or gestures), performed on a male of any age.

6. **Gross indecency between males.**

   Gross indecency with another man, whether in public or private.

7. **Buggery.**

   An act of anal sex in a public place.

8. **Unlawful sexual intercourse with a girl under 16.**

9. **Incest**

   A person having sexual intercourse with someone who they know to be their parent, their child, their grandparent or their brother or sister.

10. **Abduction**

    Taking away or detaining a girl or woman against her will.

11. **Soliciting or importuning by a man.**

    Persistently soliciting or importuning (insistently demanding) in a public place for immoral purposes.

12. **Abuse of position of trust.**

    Improperly misusing a position of responsibility toward a person under the age of 18.

13. **Gross indecency with a child**

    Gross indecency with or toward a child under the age of 16, or inciting a child under 16 to commit such an act with the offender or with another child or person.

2.4.7 Vehicle & other theft

1. **Theft or unauthorized taking of a motor vehicle.**

   Stealing a motor vehicle, with intent to permanently deprive the owner of it.

2. **Aggravated vehicle taking.**

   Stealing a motor vehicle, with intent to permanently deprive the owner of it, and driving that vehicle dangerously, or consequently causing injury or damage to property, including to the vehicle.

3. **Vehicle interference and tampering**

   Interfering with a vehicle, its contents or anything carried in it.

4. **Theft from shops**

   Stealing, with intent to permanently deprive, from retail premises (i.e. shoplifting).

5. **Theft by an employee.**

   Stealing from one's employer, with intent to permanently deprive the employer.

6. **Theft or unlawful taking of mail.**

   Unlawfully taking away or opening a mailbag.

7. **Theft from an automatic machine or meter**

   Stealing money from a meter in a dwelling.

8. **Theft in a dwelling other than from an automatic machine or meter**

   Stealing property from a dwelling where the thief has not trespassed to gain entry.

9. **Proceeds of crime**

   Concealing, disguising, converting, transferring or removing property obtained through criminal activity (i.e. money laundering).

10. **Abstracting electricity.**

    Dishonestly using, wasting or diverting electricity, without authority.

11. **Other theft or unauthorized taking**

    Stealing not classified elsewhere.

12. **Handling stolen goods.**

    Dishonestly receiving or handling goods, knowing or believing them to be stolen.

2.4.8 Violence against the person

1. **Murder -** Premeditated and unlawful killing of another person.
2. **Manslaughter -** Unintentional killing of another person.
3. **Infanticide -** Intentional killing of an infant under 1-year-old by a mother suffering from post-natal depression or other post-natal disturbance.
4. **Causing death by dangerous driving -** Killing another person by driving a motor vehicle dangerously on a road or in a public place.
5. **Causing death by careless driving when under the influence of drink or drugs.** Killing another person by inattentive driving; the driver having recently consumed alcohol or drugs.
6. **Causing death by aggravated vehicle taking -** Killing another person by dangerous or careless driving of a stolen motor vehicle on a road or in a public place.
7. **Attempted murder -** Attempting to kill another person in a premeditated and unlawful manner.
8. **Threat or conspiracy to murder -** Stating intent to kill or solicit, encourage, endeavor, or persuade someone to do so.
9. **Child destruction -** Intentional killing of an unborn child, capable of being born alive, by its mother.

10. **Endangering railway passengers** - Placing railway passengers in danger by interfering in any way with the railway system.
11. **Less serious wounding (including any minor injury)** - Maliciously inflicting grievous bodily harm, with or without a weapon; also assaulting someone and causing him or her actual bodily harm.
12. **Racially or religiously aggravated other wounding** - Maliciously inflicting grievous bodily harm, with or without a weapon; also assaulting someone and causing him or her actual bodily harm, where there is a racial or religious motive to the offence.
13. **Common assault (no injury)** - Assaulting another person where the victim receives a minor injury or, as of 2002/03, no injury.
14. **Racially or religiously aggravated common assault** - Assaulting another person where the victim receives no injury and there is a racial or religious motive to the offence.
15. **Possession of weapons** - Being found in possession of an object or instrument.
16. **Assault on a constable** - When a police officer is assaulted in the course of his or her duty.
17. **Cruelty to or neglect of children** - Inflicting pain or failing to care for a child, young person, servant or apprentice.
18. **Abandoning a child under two years** - Deserting or exposing an infant to a situation where its life is endangered or it is likely to be permanently injured.
19. **Child abduction** - Illegal taking of a child under 16 by a parent or person connected.

20. **Procuring illegal abortion -** Giving drugs to, or using instruments on, an expectant mother to cause an illegal abortion.

2.4.9 Other offences

1. **Riot -** A disturbance made by an unruly mob of 12 people or more, where their behavior causes bystanders to fear for their safety.

2. **Violent disorder -** A disturbance made by an unruly mob of 3 people or more, where their behavior causes bystanders to fear for their safety.

3. **Other offences against the state and public order -** Various offences prejudicial to public order, such as hoaxes, and acts inciting racial or religious hatred.
4. **Indecent exposure -** Exposing one's body in a public place with intent to insult or offend.

5. **Going equipped for stealing, etc. -** When not at home, a person has with him or her item for use in connection with a burglary (i.e. a gemmy/short crowbar).

6. **Blackmail -** Attempting to obtain money by intimidation.

7. **Kidnapping -** Taking another person by force or fraud, without consent and legitimate excuse.

2.5 Crime Prevention

Below are some tips on how to prevent a robbery or survival tips should one within your housing area. However, this is the address of the nearest police station:

Balai Polis Klang

Polis Diraja Malaysia

Jalan Gedung Raja Abdullah

41560 Klang

Selangor

1. **BEFORE YOU LEAVE HOME**
    - Please ensure your house doors and windows are locked.
    - Leave safety/ emergency instructions to anyone who stays behind.
    - Switch on your motion detector light, car porch and garden light and inside lights should you return home late at night.
    - Write down license numbers of suspicious vehicles parked near your home and call the police if necessary.
    - When you enter your car, lock all doors and roll up the windows. Start your car engine immediately.

2. **WHILST ON THE ROAD**
    - Avoid repetitious travel patterns or habits.
    - Be observant. Stay alert and be aware of your surroundings, especially at intersections and at traffic light.

- If you suspect you are being trailed, don't drive home or get out. Drive to the nearest police station or open shops area for help. Try to write down the vehicle license number, description of the car and persons following you. Blow your car horn and turn on the headlights if the suspect comes close to you.
- If your car is knocked at the back, and if you are suspicious, do not stop to inspect. Note the type and registration number of the vehicle (and description of driver, if possible), and drive straight to the police station or shops that you are familiar with before you stop.
- If someone tries to get in your car while you are stationery - drive away quickly.
- Never pick up hitchhikers or strangers.

3. **ON REACHING HOME OR YOUR DESTINATION**

- Be observant. Make sure no car or motorbike trail behind you.
- Watch out for cars or motorbikes parked near your home especially if the cars tinted and with people sitting inside.
- Be mindful of car with 2 to 4 well-built men. If there are children & women in the car, chances are they are not dangerous.
- Write down the license number & description of suspicious vehicles. Note the number & description of people inside.
- If in doubt, do not stop but drive off to call for help or to the nearest police station

- On reaching your car porch, do not get down in a hurry. Close your porch gate first with your remote control before anyone gets down from the car.
- If you arrive home and your door is opened or things appear to be out of place, don't go into your home. Leave and call the police.

4. **WHEN YOU ARE CONFRONTED**

- Try to stay calm. Don't make any sudden movements to surprise or upset the robber.
- Do exactly as you are told. DO NOT RESIST!
- Tell the robber about anything that might surprise him, such as someone who is expected to arrive soon.
- If you have to move to get things or go to toilet, tell the robber what you are going to do and why.
- Try to remember the look of the robber so you can describe him later.
- Don't be a hero. It's better to lose your money than your life.
- Note his direction of travel when he leaves.
- Try to get a description of his vehicle.

5. **WHAT TO DO AFTER A ROBBERY**

- Call the police immediately, even if you have already activated the alarm. (Emergency number: Fixed line phone - 999 or mobile phone - 112. The nearest police station to your home - Balai Polis Klang, tel. no.: 03-33712222)
- Ask any witnesses to stay until police arrive. If they can't, get their names, phone numbers and addresses.

- Do not touch anything that the robber may have touched. Seclude off areas where the robber was, if necessary.
- Step outside when the police arrive so that they will know the robber is gone and you are safe.
- Try to recall as much as you can about the robber's appearance, speech and mannerisms. Make notes.
- Let the police answer inquiries from the news media.
- Do not discuss the amount of money or valuables taken with anyone other than the police.

2.6 Crime statistic

The statistic below is sourced from the Polis Diraja Malaysia (PDRM). It is important to take note that the statistic shown below is compiled from PDRM that reflect the reported crimes. The real crime statistic volume not reported to the police is generally believed at least 5 times then reported.

TAHUN	1997	1998	1999	2000	2001	2002	2003
JENAYAH KEGANASAN							
Bunuh	540	629	588	551	608	516	565
Cuba Bunuh	52	51	52	43	68	64	77
Samun Berkawan Bersenjatapi	43	64	74	89	65	73	45
Samun Berkawan Tanpa Senjatapi	1,079	1,385	1,482	1,681	1,697	1,704	1,920
Samun Bersenjatapi	589	741	700	722	566	425	381
Samun Tanpa Senjatapi	7,316	9,518	11,494	12,204	11,333	12,203	13,963
Rogol	1,429	1,539	1,457	1,210	1,354	1,418	1,471
Mencederakan Manusia	5,871	5,746	5,310	5,104	4,699	4,440	4,368
JUMLAH	16,919	19,673	21,157	21,604	20,390	20,843	22,790
JENAYAH HARTA BENDA							
Pecah Rumah & Curi (Siang)	7,716	8,912	9,401	8,675	7,449	6,821	6,928
Pecah Rumah & Curi (Malam)	21,644	25,559	26,535	24,238	21,003	18,444	18,861
Curi Motor Lori/Van	1,801	2,579	3,485	3,698	4,306	4,570	5,551
Curi Motokar	3,299	4,605	6,196	7,278	8,520	8,544	8,537
Curi Motosikal	26,796	36,766	41,905	45,903	47,223	47,137	50,212
*Curi Ragut	-	-	-	15,082	14,368	14,640	15,798
Lain-Lain Curi	43,001	60,765	60,436	54,881	33,210	28,043	27,638
JUMLAH	104,257	139,186	147,958	145,569	136,079	128,199	133,525
JUMLAH JENAYAH INDEKS	121,176	158,859	169,115	167,173	156,469	149,042	156,315

Table 2.1 Crime Statistic
Source: Polis Diraja Malaysia (2004). "Jenayah Indeks statistic"

2.7 Existing System Evaluation

There is tons of existing neighbourhood watch community portal in the internet today. All systems are moving towards a same target which is to prevent crime and ensure safe and secure neighbourhood. Among these systems, 4 of them had been choose to be studied in detailed about their strengths and weakness, modules, functionality, availability, security and so on. Tools and languages to create the systems are also studied. Below are the 4 chosen systems:

1) USJ18 Pengawasan Sejiran

http://www.usj18.nwatch.net.my/index.cfm

2) Sunway Damansara Community Web

http://community.sunway.com.my/sunwaydamansara/

3) Leicestershire Village Neighbourhood Watch

http://www.nhwleicsnorth.org

4) Melbourne Neighbourhood Watch

http://www.thelad.net/nhw

2.7.1 USJ18 Pengawasan Sejiran

Date accessed: 15 August 2004

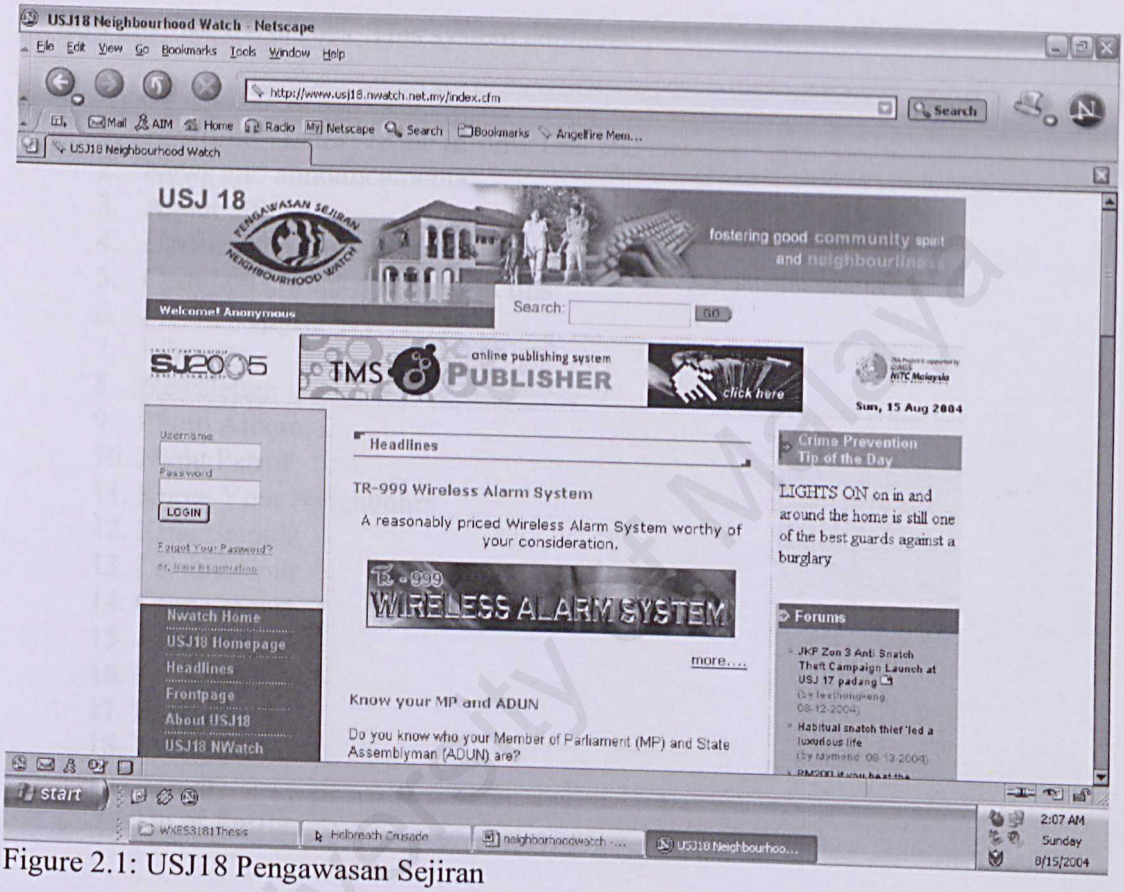


Figure 2.1: USJ18 Pengawasan Sejiran

Source: http://www.usj18.nwatch.net.my/index.cfm

Owned and maintained by Persatuan Penduduk USJ18

2.7.1 USJ18 Pengawasan Sejiran

Date accessed: 15 August 2004

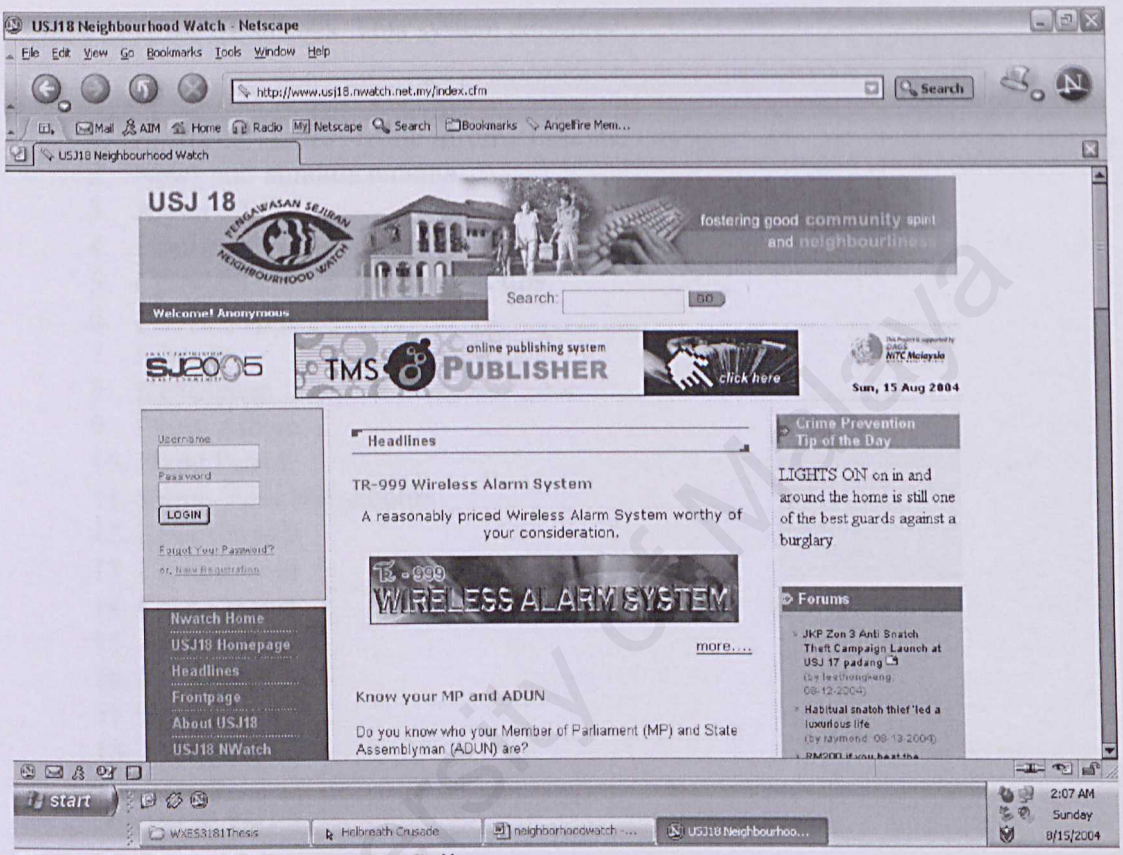


Figure 2.1: USJ18 Pengawasan Sejiran

Source: http://www.usj18.nwatch.net.my/index.cfm

Owned and maintained by Persatuan Penduduk USJ18

2.7.1.1 Content

'USJ18 nwatch' is a community portal with the motto "fostering good community spirit and neighbourliness. It is an interactive web based portal for residents at USJ 18, Subang Jaya to strike the crimes. This system contains:

1. Headline - Latest crime information and statistic
2. News and announcements
3. About USJ18
4. Useful phone numbers
5. Common crimes and prevent tips
6. Media Reports
7. Library
8. Newsletter
9. Photo Album
10. Night Patrol
11. Know Your Neighbours
12. Kitar Semula
13. Leisure Hour
14. Crime report
15. Archive
16. Feedbacks
17. Events
18. Forum
19. Search
20. Tip of the day

2.7.1.2 System summary

This system is very clean and systematic. Navigation menu bar located at left part of the web page. Blue and white are the main attractive colors of the page. The combinations of colors are very match. These features enable visitor a very comfortable viewing. Information provided here are highly sufficient. Language used is easy and understandable.

The description of crime prevention is very clear and organized. Statistical report of recent crimes activities is well explained.

However, the forum is too broad. This system shares its forum with others system. In other words, this system does not have its own forum. Residents from other areas such as USJ16, USJ17 and others can view their chat and forum.

A unique function of this system is KYN (Know Your Neighbour). This function organizes activities so that residents can gather and know each other. Thus, relationship among neighbours can be improved.

Another good feature is this system enables users to write feedback to the portal administrator. This service improves the system continuously.

To conclude, this system performs very well compare to other existing system today. Dynamic and systematic is the main core of this system but lack of a good forum.

2.7.2 Sunway Damansara Community Web

Date accessed: 15 August 2004

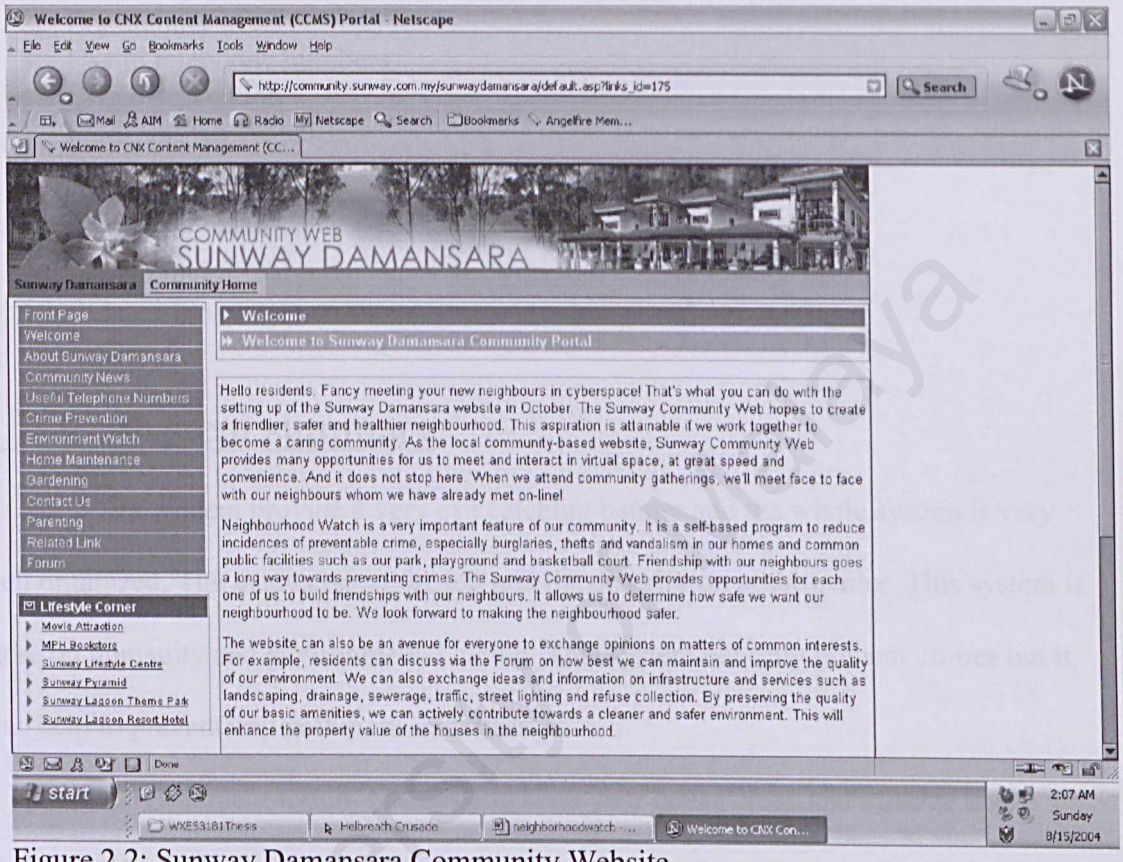


Figure 2.2: Sunway Damansara Community Website

Source: http://community.sunway.com.my/sunwaydamansara

Owned and maintained by Sunway Residents' Association

Hosted by Sunway City Berhad

2.7.2.1 Content

'Sunway Damansara Community Web' contains the following:

1. About Sunway Damansara
2. Community news
3. Useful telephone numbers
4. Crime prevention
5. Environment Watch
6. Home Maintenance
7. Gardening
8. Contact us
9. Parenting
10. Related Link
11. Forum

2.7.2.2 System summary

This system provide a very eye catching banner and the whole system is very well organized. The menus bar at the left and the description at the center. This system is more on humanity and environmental caring. This system not only prevent crimes but it also help to prevent any pollutions and disaster.

'Environment watch' teaches you keep your house clean and manage waste disposal. 'Home maintenance' provides steps to repair and prevent your lovely house from getting old.

Another good service provided by this system is 'Parenting'. 'Parenting' teach you how to guide your children and information about child guardians.

To conclude, this system is more simple but very useful to the residents.

2.7.3 Leicestershire Village Neighbourhood Watch

Date accessed: 16 August 2004

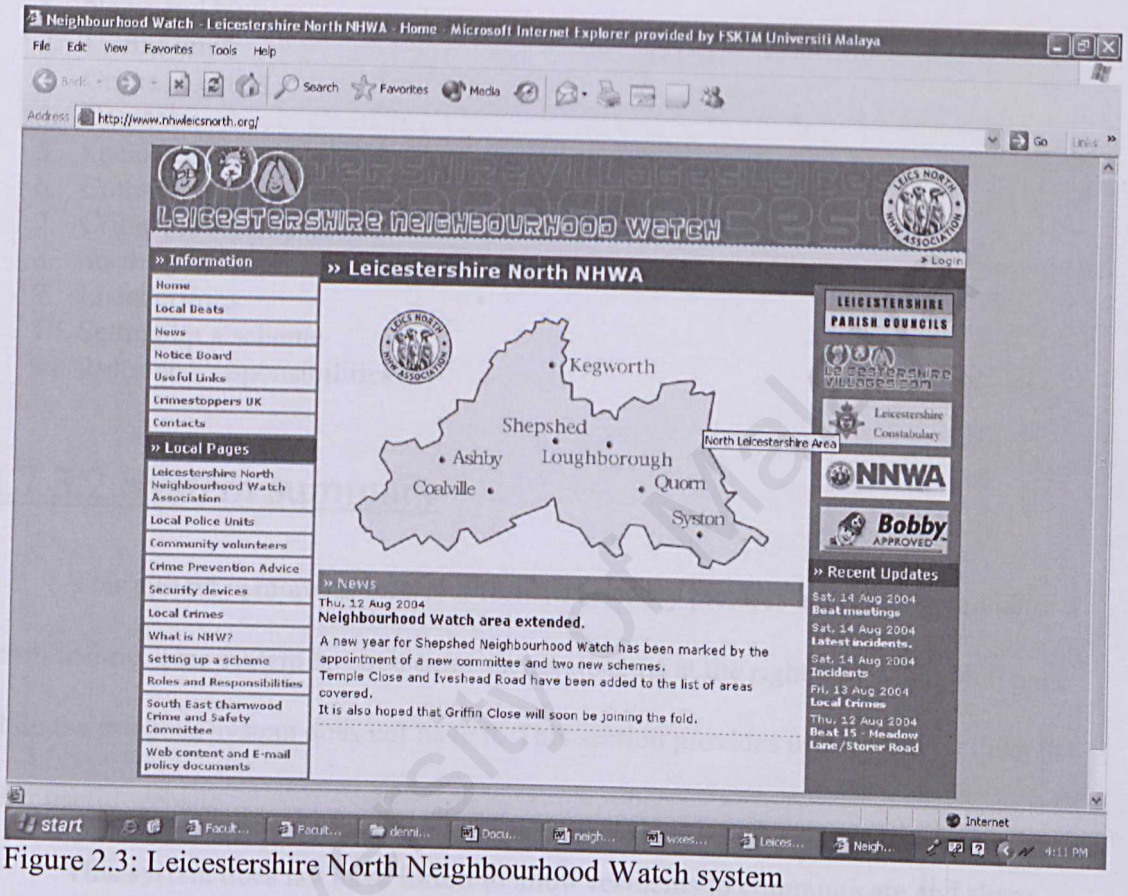


Figure 2.3: Leicestershire North Neighbourhood Watch system

Source: http://www.nhwleicsnorth.org/

Owned by Leicestershire North Neighbourhood Watch Association

2.7.3.1 Content

Leicestershire is a village located at U.K. Foreigner's system taken into consideration will be an advantage to the –EngAnnWatch- system development. This system contains:

1. News and Notice
2. Useful links
3. Crime stoppers
4. Contacts
5. Local police units
6. Community volunteers
7. Crime prevention advice
8. Security devices
9. Local crimes
10. Setting up a scheme
11. Roles and responsibilities

2.7.3.2 System summary

This system is more on informal format. Friendly pictures and fonts give visitor a warm feeling. This system has one extra section located at the right part of the web page while the previous system does not have it. This section provides user graphical links to other useful website.

This system does not have forum to allow residents to communicate and share information. In other words, it is lack of interactively.

The division of topics is laid out and well neat. This helps users to obtain knowledge from the system in multiple levels. The colours used shows contrast and this will make the users more alert to clickable sections.

To conclude, this system is well organized but lack of interactively.

2.7.4 Melbourne Neighbourhood Watch

Date accessed: 15 August 2004

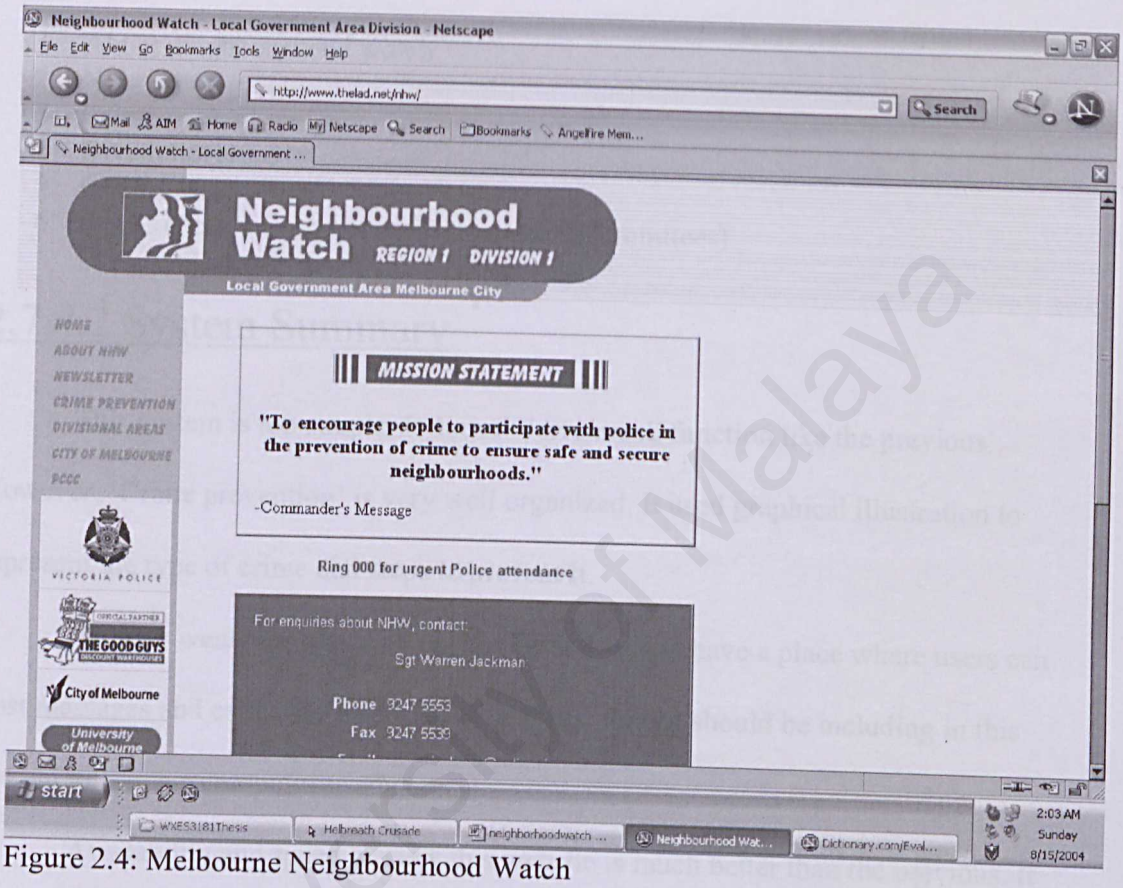


Figure 2.4: Melbourne Neighbourhood Watch

Source: http://www.thelad.net/nhw

Owned by - The LAD Website Services Pty Ltd

2.7.4.1 Content

'thelad.net' is a neighbourhood watch community portal for Melbourne city, Australia with the motto - to encourage people to participate with police in the prevention of crime to ensure safe and secure neighbourhoods. 'thelad.net' contains:

1. About neighbourhood watch
2. Newsletter
3. Crime prevention
4. Divisional areas
5. City of Melbourne
6. PCCC (Police Community Consultative Commitees)

2.7.4.2 System Summary

This system is too simple. It doesn't have much function like the previous'. However, 'Crime prevention' is very well organized. It used graphical illustration to represent the type of crime and steps to prevent it.

Another weakness about this system is it does not have a place where users can post messages and exchange information or ideas. Forum should be including in this system to achieve competitive advantage.

Availability and speed to view this website is much better than the previous. It because this system is much simple and requires less times to open the page.

To conclude, this system is lack of interactively and functionality but its fast to open the page.

2.7.5 Overall Existing System Summary

After a detailed review and analyst of 4 similar neighbourhood watch community portal, a good neighbourhood watch community portal should have the following features:

1. Introduction to local residential area
2. Community News and Notice
3. Forum
4. Useful contact information (e.g. phone number, address, URL)
5. Crime Prevention
6. Contact us
7. Home maintenance
8. Environment watch
9. Crime statistic
10. Kitar semula
11. Events
12. Night Patrol schedule
13. Leisure corner
14. Member login

Other than the features above, a good neighbourhood watch community portal should have suitable, eye catching color matching scheme. Information should be organized systematically. Graphical illustration is a must to represent words in order to give visitor a clearer understanding.

2.8 Development tools

Development tools in computer science view means the application programs, often one that creates, manipulates, modifies, or analyzes other programs to produce goods or services. An interactive community portal need the following development tools and each of them will be studied in detailed.

1) Macromedia Dreamweaver MX

2) Microsoft® Internet Information Services (IIS)

3) Adobe® Photoshop® 7.0

4) Microsoft® Office Xp

5) Microsoft® Visual Studio .net

6) .NET Framework

2.8.1 Macromedia Dreamweaver MX

Figure 2.5: Macromedia Dreamweaver

Macromedia Dreamweaver is a professional HTML editor for visually designing and managing Web sites and pages. It provides you with the means to either hand-coding HTML or work in a visual editing environment. Dreamweaver has many helpful tools for creating and managing your Web sites. Dreamweaver's visual editing features allow you to add design and functionality to your pages without writing a line of code.

Dreamweaver MX 2004 is the professional visual design solution for building websites and Internet applications. Dreamweaver's powerful features allow you to automate production and enhance team efficiency. Dreamweaver facilitates workflow through integration with other web applications, Macromedia Contribute, Fireworks and Flash, Microsoft Office, and leading e-commerce and application servers. Moreover, Dreamweaver can be customized using HTML, JavaScript, and XML for advanced website development. Dreamweaver builds better websites and Internet applications faster.

2.8.2 Microsoft IIS

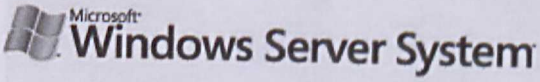


Figure 2.6: IIS

Internet Information Services

Internet Information Services (IIS) 6.0 is a powerful Web server that provides a highly reliable, manageable, and scalable Web application infrastructure for all versions of Windows Server 2003. IIS helps organizations increase Web site and application availability while lowering system administration costs. IIS 6.0 supports the Microsoft Dynamic Systems Initiative (DSI) with automated health monitoring, process isolation, and improved management capabilities.

2.8.3 Adobe® Photoshop® 7.0

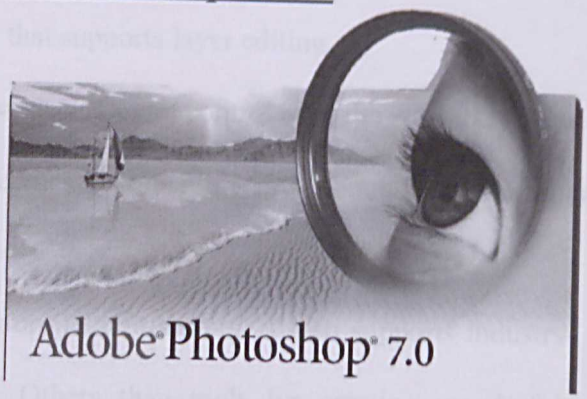


Figure 2.7: Adobe® Photoshop® 7.0 by Adobe®

Adobe® Photoshop® 7.0 is a professional image- editing software which can enable users to work more efficiently, explore new creative options and produce the highest quality image for print, Web and anywhere else.

The features of Adobe® Photoshop® are like: -

1. Web output enhancement
2. Auto colors command
3. Painting engine
4. Healing brush
5. Customizable workspace
6. Multiple Layer editing

Adobe® Photoshop is among the few most sophisticated drawing tools available. It is a raster drawing tool that supports layer editing.

Layers editing gives users more control over the artwork. Student can always work on one layer with reference to other layers without fear of accidentally spoilt other layers.

Besides the common paintbrush tool, it also supports industry- standard pen tool for precision drawing. Others than tools for creating wonderful artwork, Adobe® Photoshop® is also an ideal application for photo editing. It has a very powerful colour correction tools. The tonality and texture of the original photo can be preserved while removing flaws using the healing brush.

Adobe® Photoshop® is able to support a wide format of graphics elements such as; .psd, .pdd, .bmp, .rle, .dib, .gif, .eps, .jpg, .jpeg, .jpe, .pcx, .pdf, .pdp, .pct, .pict, .pxr, .png, .raw, .sct, .tga, .vda, .icb, .vst, .tif, .tiff [24]. This gives it extra advantages for cross format graphic editing among the available software.

2.8.4 Microsoft office XP Access Database, Word, Visio

Figure 2.8: Ms Office

Microsoft Office is a package of software that will take care of day to day office functions. All Office packages include Word for word processing, Excel for spreadsheets, and PowerPoint for presentations and slide shows. The "Professional" package may include Mail for communications and either Access or FoxPro as a database. Microsoft Office (MS Office) is available for the Windows, Windows 95, and the Macintosh operating systems. They look and work almost identically. Data can be transferred relatively easily between the different operating systems. Also within Word, Excel and PowerPoint, many of the tools are used for the same functions.

Microsoft Office XP offers a smarter way to work that simplifies your productivity, enables effective collaboration, and extends your experience beyond the desktop

2.8.5 Macromedia Flash MX 2004

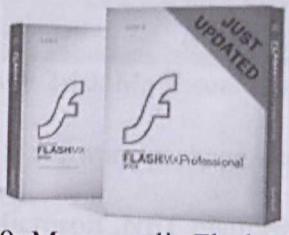


Figure 2.9: Macromedia Flash MX2004

Macromedia Flash MX 2004 is the most widely distributed software in the history of the internet and is bundled with Internet Explorer, AOL, Netscape Navigator, Opera, and Windows XP. Over 414 million web users can see Macromedia Flash content immediately, without having to download a player. Macromedia Flash is also available on a growing number of internet connected devices such as wireless handhelds, iTV and game consoles.

The Macromedia Flash MX solution couples the ubiquitous client technology of Macromedia Flash Player with the Macromedia Flash MX development environment and optimized server-side connectivity that allows rich internet application development to be accomplished quickly. This enables a more immediate, consistent and familiar experience for end users and maximizes the customer experience online.

2.8.6 Microsoft Visual Studio .net

Figure 2.10: Ms Visual Studio .net

Visual Studio .NET is a software package used to develop web applications & data-driven solutions for the Microsoft .NET platform. .NET is an outgrowth of Visual Basic & ASP (Active Server Pages). When used to develop web applications the .NET platform gives the developer a much richer object orientated experience, closer to true programming styles and removing many of the limitations currently found in ASP 2.0 / 3.0 programming. Visual Studio .NET is the only development environment built from the ground up for XML Web services. By allowing applications to share data over the Internet, XML Web services enable developers to assemble applications from new and existing code, regardless of platform, programming language, or object model.

2.8.7 .NET framework

Figure 2.11: .NET framework

The .NET Framework is an environment for building, deploying, and running Web Services and other applications. It consists of three main parts: the Common Language Runtime, the Framework classes, and ASP.NET.

.NET is the framework for which we develop applications. It sits in between our application programs and operating system. Applications developed for .NET run inside .NET and are controlled by .NET. It supports both Windows and web applications.

.NET provides an object oriented environment. It ensures safe execution of the code by performing required runtime validations. For example, it is never possible to access an element of an array outside the boundary. Similarly, it is not possible to a program to write into another programs area, etc. The runtime validations performed by .NET makes the entire environment robust.

Chapter 3: Methodology

-EngAnnWatch-

Neighbourhood Watch Community Portal

3.1 Introduction

Methodology is an organized, documented set of procedures and guidelines for one or more phases of the software life cycle, such as requirement, analysis, design or implementation. Managing –EngAnnWatch- system development require a good methodology. At here, two methods will be mix-and-match for making this system successful. The two methods mentioned are Rapid Application Development (RAD) and Iterative-and-Incremental model. These two methods will be discussed in detail and it will ensure a proper consequence on the work.

3.2 Rapid Application Development

RAD is a system development strategy that emphasizes speed of development through extensive user involvement in the rapid, iterative, and incremental construction of a series of functioning prototypes of a system that eventually evolves into the final system. RAD is a methodology for compressing the analysis, design, build, and test phases into a series of short, iterative development cycles. This has a number of distinct advantages over the traditional sequential development model.

Rapid Application Development is an ideal methodology for systems planned to be built in as little as 60- 90 days, often with some compromises. It is a methodology for compressing the analysis, design, build and test phase into a series of short, iterative development cycles. This has a number of distinct advantages over the traditional sequential development model. Rapid Application Development is suitable if there is a plan to converge early towards a design acceptable to the customer and feasible for the

developers. By using Rapid Application Development as well, a project's exposures to the forces of change will be very much limited besides saving development time, possibly at the expense of economy or product quality. The basic ideas of RAD are:

1. To more actively involve system users in the analysis, design, construction activities.
2. To accelerate the requirements analysis and design phases through an iterative approach.
3. To reduce the time before the users begin to see a working system.

3.3 Iterative-and-Incremental model

The basic idea behind iterative enhancement is to develop a software system incrementally, allowing the developer to take advantage of what was being learned during the development of earlier, incremental, deliverable versions of the system. Learning comes from both the development and use of the system, where possible. Key steps in the process were to start with a simple implementation of a subset of the software requirements and iteratively enhance the evolving sequence of versions until the full system is implemented. At each process of iteration, design modifications are made along with addition new functional capabilities.

Changes are the expected factor is any system development.

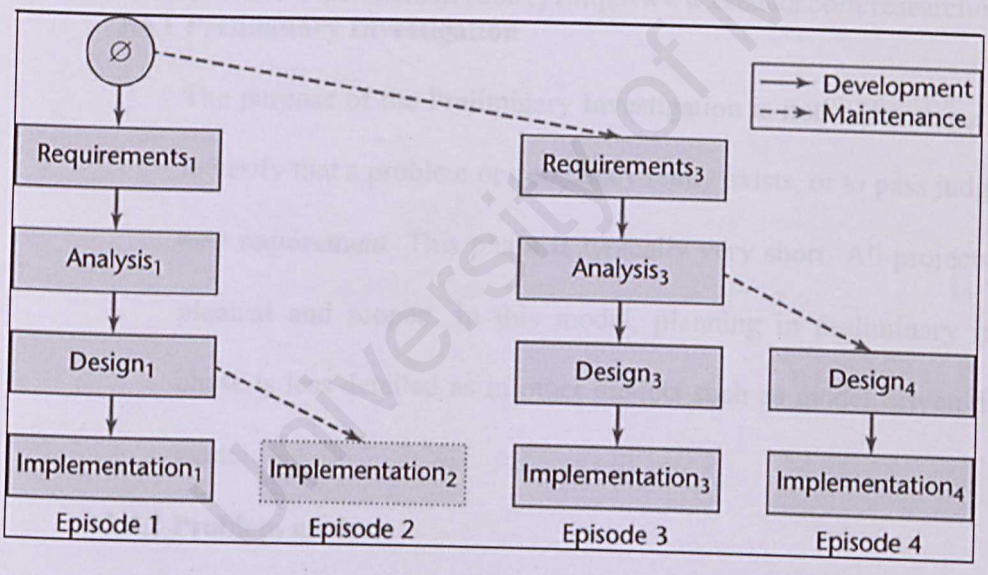


Figure 3.1: Iterative-and-Incremental Model
Source: Stephen R. Schach (2004) "The Software Process"

3.4 Rapid Application Development Life Cycle

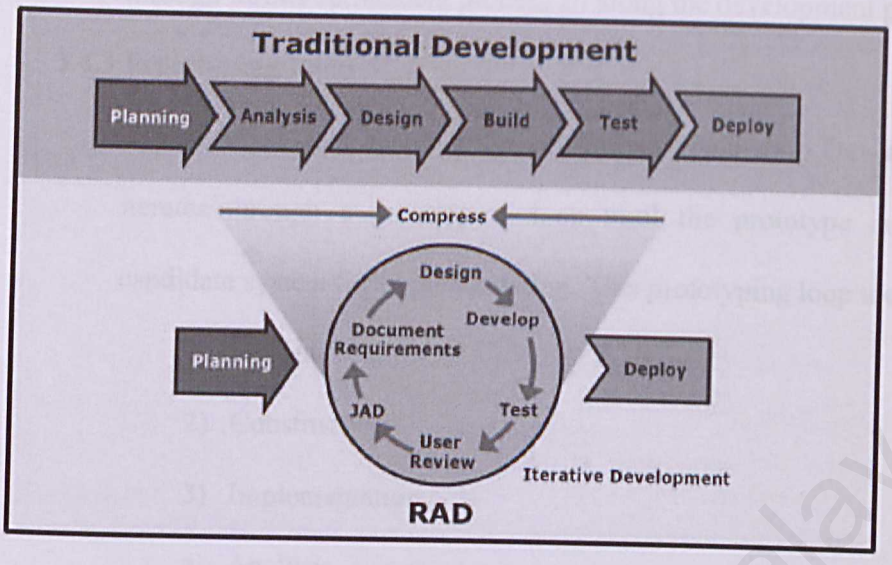


Figure 3.2: RAD life cycle
Source: Steve C McConnell (2001) (http://www.credata.com/research/rad.html)

3.4.1 Preliminary Investigation

The purpose of the Preliminary Investigation is not to develop a system, but to verify that a problem or deficiency really exists, or to pass judgment on the new requirement. This phase is typically very short. All projects need to be planned and scoped. In this model, planning in preliminary investigation phase is less detailed as in other models such as model driven development model.

3.4.2 Problem analysis

This phase includes the problems analysis, requirement analysis and decision analysis of basic methodology which are consolidated into a single analysis phase. The requirements statements include various system models, even though it may not be very much in detailed. The requirements for –

EngAnnWatch- is identified on the surface level as this is expected to go through further refinement process all along the development process.

3.4.3 Prototyping Loop

After analysis had been carried out, Rapid Application Development model iterates through a prototyping loop until the prototype is considered a candidate system for implementation. This prototyping loop includes: -

1) Design
2) Construction
3) Implementation
4) Analysis

3.4.4 Iterative Design

Design phase encompass many different elements like input, output, process, data, and action. –EngAnnWatch- design phase will be based on iterative model. For example, the first iteration might deliver 10%, the second iteration 25% and so forth.

3.4.5 Iterative Construction

The construction phase involves greater time spent constructing the working prototypes. This is to ensure the quality of deliverables at the end of each iteration process.

3.4.6 Iterative Implementation

During the Implementation phase, both hardware and software is tested. Problems might occur during or after implementation. This leads to the maintenance phase.

3.4.7 Iterative Analysis

Analysis is revisited based on user feedback to the prototype. This analysis tends to focus on revising requirements and identifying user concerns with the design. Analysis cycles back to iterative design and the prototyping loop repeats itself.

3.4.8 Maintenance and Support

Maintenance is the process that occurs when a software artifact is modified because of a problem or because of a need for improvement or adaptation.

3.5 Advantages of RAD + Iterative-and Incremental model

3.5.1 Early visibility

By producing iterative operational prototype through out the development life cycle, a clear cut of the final system's idea can be generated. This combination of model provides multiple opportunities for checking that the software product is correct, because every process of iteration incorporates the test workflow. Thus, faults can be detected and corrected early. This allows further identify the level of fulfillment of all the functional and non-functional requirements prior to completion of a task. From this processes, -EngAnnWatch- will be put through various refinement to ensure its performance and quality.

3.5.2 Greater flexibility

Necessary changes can be easily made. This allows the best approach to be utilized in order to achieve the requirements set. Such flexibility to look for the best approach at any time of the development life cycle is an added advantage for the overall performance of the final product of –EngAnnWatch-

3.5.3 Greatly reduced of manual coding

Rapid Application Development encourages the usage of available wizards, code generators and code reuse. This is ideal for development which is constraint by short development time. This method is an ideal method which is very much helpful and essential.

3.5.4 Possibly reduced cost

Although –EngAnnWatch- doesn't require much investment to develop but the reduction in development time also means the reduction of cost. Besides that, the encouragement for code reuse also cut down the development cost in a great deal.

3.5.5 Shorter development cycles

In Rapid Application Development model, the development distribution generally tilts more towards schedule; this means the reduction of time in each and every development cycle to complete the system within the shortest possible time.

3.5.6 Domain user active participation

It is useful for projects in which the user requirements are uncertain or imprecise. It encourages active user and management participation.

3.5.7 Model driven development advantages

Errors and omission tend to be detected earlier in prototypes than in system model.

3.6 Disadvantages of RAD + Iterative-and-Incremental model

3.6.1 Unwanted features

Software reuse is highly encouraged in this model; this may cause unwanted features from existing components. In order to mitigate this risk, software reuse should be edited properly to ensure what exactly –EngAnnWatch-need.

3.6.2 Reduced features

Because of the software reuse, certain features which –EngAnnWatch-needed might be slipped. To solve this problem, functional and non-functional requirement should be refreshing when developing the system.

3.6.3 Time wasting

Some developers think that building prototype is a loss of time and effort in the current product.

3.6.4 Quality reduced

The emphasis on speed can adversely impact the quality because of ill-advised shortcuts through the methodology.

3.6.5 Requirements may not covered

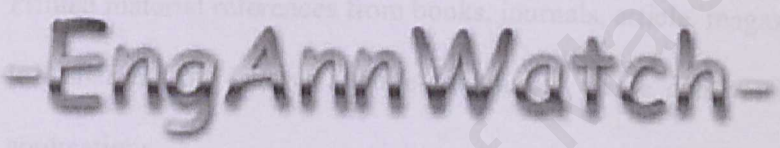
From iteration to the next, users and developer's interest may diverge and this will causes the requirements to change all the time. In order to overcome this obstacle, the need to review back on previous iteration results to specify new iteration's rule is another matter of discipline. Therefore it is also very

essential to keep track of passed iterations' results and outcome before continuing on to the next iterations.

3.7 Summary

RAD is a system development strategy that emphasizes speed of development through extensive user involvement in the rapid, iterative, and incremental construction of a series of functioning prototypes of a system that eventually evolves into the final system. Changes are the expected factor is any system development. Thus, iterative-and-incremental model is applied.

Chapter 4: System Analysis



Neighbourhood Watch Community Portal

4.1 Requirement Discovery Techniques

System Analysis is a problem-solving technique that decomposes a system into its component pieces for the purpose of studying how well those component parts work and interact to accomplish their purpose. System analysis attempts to express user requirements for new system. Thus, data is collected in few methods to identify problems, opportunity, and requirements. Below are the data and fact finding methods:

1. Discussion with the project's supervisor.
2. Printed material references from books, journals, article, magazine.
3. Information from internet about e-community, crime, and web based applications.
4. Observation of the current existing system related to neighborhood watch, rukun tetangga etc.
5. Interviews with domain user (e.g. residents, user, forum admin, etc)

4.1.1 Discussion with supervisor

Solid advises, suggestions, and corrections from supervisor are adapted into the whole system development.

4.1.2 Printed Material Reference

The secondary method of collecting data and information about the system is by printed materials such as books, journals, and theses. As printed materials can offer magnificent ideas as well as information, it plays an important role towards the success of –EngAnnWatch-. Besides text, graphics and tables from these printed materials contributed nevertheless the most information

4.1.3 Information from Internet

As the exchange portal of information, the World Wide Web offers more valuable information than anywhere else. Data collected from the World Wide Web includes data about neighbourhood watch, crime prevention, web based application, e-community portal, development tools and many more. Major search engines such as Googles, Copernic, Excite, Yahoo, Search and Metacrawler enable relevant information sites to be viewed with only a click away. From the search, there are many relevant and available systems from foreign developers and also by local developers. The keywords used in searching relevant web pages are:

- Neighbourhood watch
- E-community portal
- Crime prevention

- RAD model
- Software development life cycle

4.1.4 Observation from current existing system

Observation is close watch or examination or evaluate the strengths and weakness of others systems. Few systems contributed to identify the baseline problem and opportunities. And these systems act as the guideline of –EngAnnWatch- development.

4.1.5 Interview with domain user

Informal conversations were held with friends, residents and forum administrator as they would be able to provide their opinions from the point of view of a system user. The purpose of this informal conversation is to get "the other side story". Each person will probably have different views. Each person will interact with the system differently when it is built. Thus, the data collected and reported by the system addresses the needs of varying audiences.

4.2 System Analysis Approaches

Fundamentally, system analysis is about problem solving. There are many approaches to problem solving: therefore, 2 of the most suitable approaches (model driven analysis approaches and rapid architected analysis) have been used to develop – EngAnnWatch-. Combinations of these 2 methods actually complement one another which are called Agile Method.

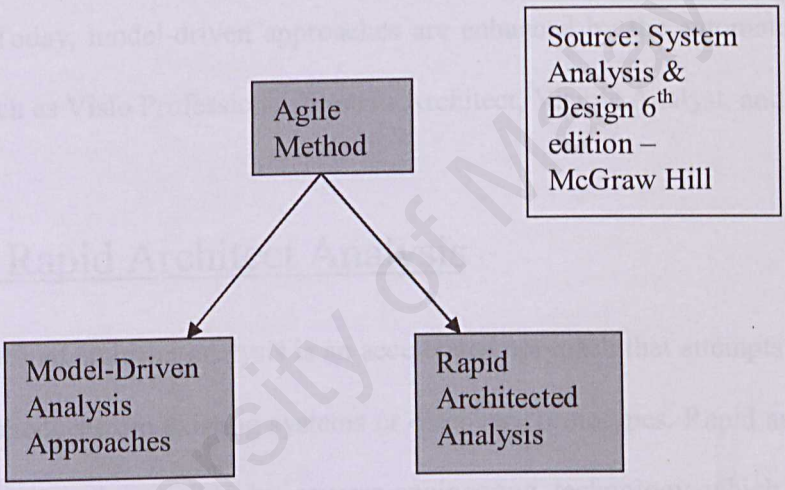


Figure 4.1: Agile method can be 2 or more analysis approaches

4.2.1 Agile Method

Agile method is the integration of various approaches of systems analysis and design for application as deemed appropriate to the problem being solved and the system being developed.

4.2.2 Model-Driven Analysis Approaches

Model driven analysis is a problem-solving approach that emphasizes the drawing of pictorial system models to document and validate existing and/or proposed systems. Ultimately, the system model becomes the blueprint for designing and constructing an improved system. It uses pictures to communicate business problems, requirements, and solutions. Examples of the pictures are flowchart, data-flow-diagram, entity-relationship diagram and many more.

Today, model-driven approaches are enhanced by the automated CASE tools such as Visio Professional, System Architect, Visible Analyst, and Rational ROSE.

4.2.3 Rapid Architect Analysis

Rapid architect analysis is an accelerated approach that attempts to derive system models from existing systems or discovery prototypes. Rapid architected analysis is made possible by reverse-engineering technology which read the program code for and existing system and automatically generates the equivalent system model. Most system have already been automated to some degree and exist as legacy information systems. Those models serve as a point of departure for defining model-driven and accelerated analysis approaches.

4.3 Requirement analysis

The requirement can divided into 2 categories:

1) functional requirement
2) non-functional requirement

4.3.1 Functional Requirement

Functional Requirement is a description of activities and services a system must provide. Below is a list of functional requirement identified for this system:

1) EngAnn Profile
2) News and Notice
3) Useful contact information
4) Crime Prevention
5) Contact us
6) Home & environment maintenance
7) Crime statistic
8) Kitar semula
9) Events
10) Night Patrol schedule
11) Leisure corner
12) Forum

Each function will be explained in the next sections. This system can be summarizing in a flowchart as below:

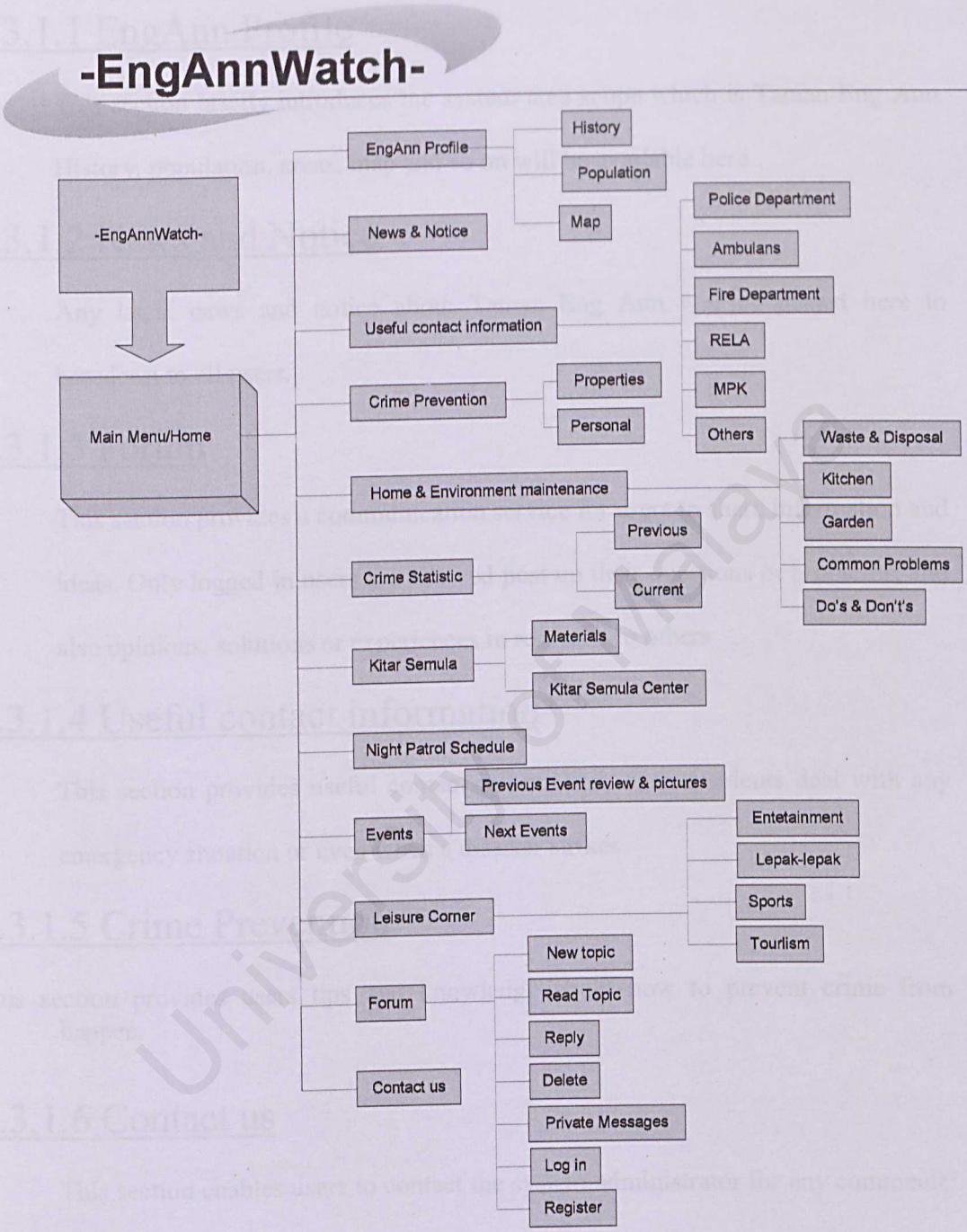


Figure 4.2: -EngAnnWatch- flowchart

4.3.1.1 EngAnn Profile

This section briefly introduces the system area scope which is Taman Eng Ann. History, population, areas, map and so on will be available here.

4.3.1.2 News and Notice

Any latest news and notice about Taman Eng Ann will be posted here to broadcast to all users.

4.3.1.3 Forum

This section provides a communication service for users to share information and ideas. Only logged in users are allowed post up their questions or problems, and also opinions, solutions or experiences in response to others

4.3.1.4 Useful contact information

This section provides useful contact information when residents deal with any emergency situation or even when a disaster strikes.

4.3.1.5 Crime Prevention

This section provides users tips and knowledge about how to prevent crime from happen.

4.3.1.6 Contact us

This section enables users to contact the system administrator for any comments, opinions, suggestion and complaints.

4.3.1.7 Home and environment maintenance

This section provides information on procedures to do the best house keeping. Methods and solution to common problems faced by every house are available here.

4.3.1.8 Crime statistic

This section provide previous and current crime statistic for Malaysia. The objective is to give residents a clear idea about what level of criticality of crime happened.

4.3.1.9 Kitar semula

This section provides information about what kind of materials can be recycled and where is the kitar semula center.

4.3.1.10 Events

This section provides the information about all previous events and the events happening in between Taman Eng Ann. Pictures and important information will be available here.

4.3.1.11 Night Patrol schedule

This section provides residents the schedule of the night patrol system. Residents will take turn to scout the town during night time. Each of the resident will take this responsibility once a month.

4.3.1.12 Leisure corner

This section provides information about entertainments, sports areas, lepak-lepak, shopping center, and so on which you can find it in Taman Eng Ann.

4.3.2 Non-Functional Requirement

Non-functional requirement is a description of other features, characteristic, and constraints that define a satisfactory system. A non-functional requirement or constraints describes a restriction on the system that limits or choices for constructing a solution to the problem arise. Below is a list of non-functional requirements identified for this system.

1) Performance
2) Reliability
3) User Friendliness
4) Integrity
5) Robustness
6) Run time requirements
7) Expandability

4.3.2.1 Performance

The system should be able to perform its services with good response time and must be in good working order with little or no chance of errors. Besides that, it should also be able to handle large amount of users without any deficiency when they access the website concurrently.

4.3.2.2 Reliability

The entire system must be presented to the user as a consistent and the availability of the system. The system should reliable and should not produce any unnecessary downtime of the overall system environment. By the way, the threats such as human error, design errors (e.g. software bugs) and metal fatigue should also be minimized to provide services with good accuracy and consistency. The ability for the system to perform its intended functions with required precision and accuracy is very important. Thus, the system should be able to perform its daily functions and operations correctly.

4.3.2.3 User Friendliness

The finished system should be easy to understand with a logical and consistent layout. Thus, it could easily make the users comfortable browsing around the system. The system by itself should be made to look simple. Users will not need to know much about how the system goes but they should only be made to understand what they need to input when they want to make a request.

4.3.2.4 Integrity

This system allows only authorized user to access the forum system. The valid user have to logon to the system by using their username and password. This will ensure the integrity of data and system.

4.3.2.5 Robustness

The finished system should be robust enough to solve any expected or unexpected system failures. Any system failure will be detect and rectify immediately by using appropriate measures.

4.3.2.6 Runtime Requirements

The compatibility of software must be taken into consideration and also the hardware constraints must also be considered, such as memory allocation and backing storage. It must also be known if any other software is required or if the system being built is to rely on any other software.

4.3.2.7 Expandability

The system should be able to be extended to accommodate more functionality in the future. This will allow the progression and advancement of technology to take part in the future of the system.

4.4 Technology Specifications

Analyses were carried out on development tools technologies such as platform needed, browser, web application developments tools and others. Apart from considering the suitability of the technology and tools according to the requirement, these tools must be able to support each other.

Most of the common features of these tools were reviewed in the literature review, so it is come to the comparison part and making the final decision of what kind of tools are going to be used to develop the system proposed. The tools that will be used to develop –EngAnnWatch- are: -

1) Macromedia Dreamweaver MX

2) Microsoft® Internet Information Services (IIS)

3) Adobe® Photoshop® 7.0

4) Microsoft® Office Xp

5) Macromedia Flash MX 2004

6) Microsoft® Visual Studio .net

7) .NET Framework

Technology has created the path for high- end multimedia elements to come into our world. Based on the applications and tools involved in the development of –EngAnnWatch- an indication line of minimum hardware requirements was drawn to provide efficiency in developing –EngAnnWatch-. These requirements were determined by taking into account all the minimum hardware requirements specified by each tool. Judging from this information, the requirements are identified and set.

4.4.1 Hardware Requirements

There are 2 sets of hardware requirements set; the developer side and user side. The hardware requirement for developer is much higher than the user side.

4.4.1.1 DEVELOPER SIDE

The hardware requirements for developer side had been identified as: -

1. Intel® Pentium® III 800 MHz processor (Pentium 4 3.06GHz recommended)
2. 512 MB RAM (1 GB recommended)
3. 20 GB hard disk space (40GB recommended)
4. Graphics card supporting 1024 x 768 x 16-bit colours with 64MB RAM with OpenGL and Direct3D hardware acceleration supported (3D graphics accelerator 1280 x 1024 x 24-bit colours with 256MB RAM preferred)
5. 32X CD- ROM
6. 3-button scroll mouse with mouse driver software
7. Multimedia Keyboard
8. Digital Camera

4.4.1.2 USER SIDE

1. Intel Pentium processor (Pentium II recommended)

   Power Macintosh Power PC processor (G3 recommended)
2. Netscape 4.0 or later

   Microsoft® Internet Explorer 4.0 or later

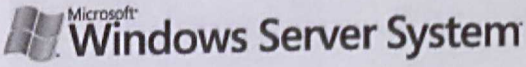
4.4.2 Software Requirements

4.4.2.1 Macromedia Dreamweaver MX

Macromedia Dreamweaver is a professional HTML editor for visually designing and managing Web sites and pages. It provides you with the means to either hand-coding HTML or work in a visual editing environment. Dreamweaver has many helpful tools for creating and managing your Web sites. Dreamweaver's visual editing features allow you to add design and functionality to your pages without writing a line of code.

Dreamweaver MX 2004 is the professional visual design solution for building websites and Internet applications. Dreamweaver's powerful features allow you to automate production and enhance team efficiency. Dreamweaver facilitates workflow through integration with other web applications, Macromedia Contribute, Fireworks and Flash, Microsoft Office, and leading e-commerce and application servers. Moreover, Dreamweaver can be customized using HTML, JavaScript, and XML for advanced website development. Dreamweaver builds better websites and Internet applications faster.

4.4.2.2 Microsoft IIS



Internet Information Services

Internet Information Services (IIS) 6.0 is a powerful Web server that provides a highly reliable, manageable, and scalable Web application infrastructure for all versions of Windows Server 2003. IIS helps organizations increase Web site and application availability while lowering system administration costs. IIS 6.0 supports the Microsoft Dynamic Systems Initiative (DSI) with automated health monitoring, process isolation, and improved management capabilities.

4.4.2.3 Adobe® Photoshop® 7.0

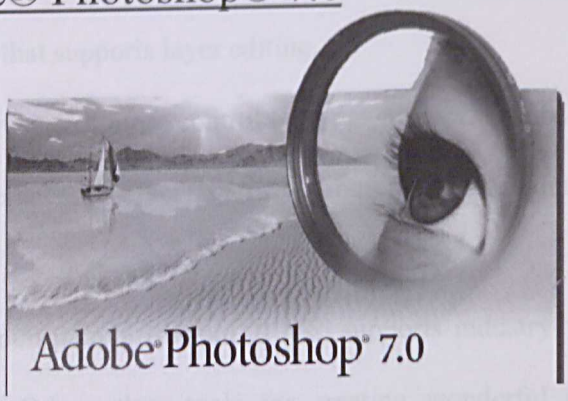


Figure 2 Adobe® Photoshop® 7.0 by Adobe®

Adobe® Photoshop® 7.0 is a professional image- editing software which can enable users to work more efficiently, explore new creative options and produce the highest quality image for print, Web and anywhere else.

The features of Adobe® Photoshop® are like: -

7. Web output enhancement
8. Auto colors command
9. Painting engine
10. Healing brush
11. Customizable workspace
12. Multiple Layer editing

Adobe® Photoshop is among the few most sophisticated drawing tools available. It is a raster drawing tool that supports layer editing.

Layers editing gives users more control over the artwork. Student can always work on one layer with reference to other layers without fear of accidentally spoilt other layers.

Besides the common paintbrush tool, it also supports industry- standard pen tool for precision drawing. Others than tools for creating wonderful artwork, Adobe® Photoshop® is also an ideal application for photo editing. It has a very powerful colour correction tools. The tonality and texture of the original photo can be preserved while removing flaws using the healing brush.

Adobe® Photoshop® is able to support a wide format of graphics elements such as; .psd, .pdd, .bmp, .rle, .dib, .gif, .eps, .jpg, .jpeg, .jpe, .pcx, .pdf, .pdp, .pct, .pict, .pxr, .png, .raw, .sct, .tga, .vda, .icb, .vst, .tif, .tiff [24]. This gives it extra advantages for cross format graphic editing among the available software.

4.4.2.4 Microsoft office XP Access Database, Word, Visio

Microsoft Office is a package of software that will take care of day to day office functions. All Office packages include Word for word processing, Excel for spreadsheets, and PowerPoint for presentations and slide shows. The "Professional" package may include Mail for communications and either Access or FoxPro as a database. Microsoft Office (MS Office) is available for the Windows, Windows 95, and the Macintosh operating systems. They look and work almost identically. Data can be transferred relatively easily between the different operating systems. Also within Word, Excel and PowerPoint, many of the tools are used for the same functions.

Microsoft Office XP offers a smarter way to work that simplifies your productivity, enables effective collaboration, and extends your experience beyond the desktop

4.4.2.5 Macromedia Flash MX 2004

Macromedia Flash MX 2004 is the most widely distributed software in the history of the internet and is bundled with Internet Explorer, AOL, Netscape Navigator, Opera, and Windows XP. Over 414 million web users can see Macromedia Flash content immediately, without having to download a player. Macromedia Flash is also available on a growing number of internet connected devices such as wireless handhelds, iTV and game consoles.

The Macromedia Flash MX solution couples the ubiquitous client technology of Macromedia Flash Player with the Macromedia Flash MX development environment and optimized server-side connectivity that allows rich internet application development to be accomplished quickly. This enables a more immediate, consistent and familiar experience for end users and maximizes the customer experience online.

4.4.2.6 Microsoft Visual Studio .net

Visual Studio .NET is a software package used to develop web applications & data-driven solutions for the Microsoft .NET platform. .NET is an outgrowth of Visual Basic & ASP (Active Server Pages). When used to develop web applications the .NET platform gives the developer a much richer object orientated experience, closer to true programming styles and removing many of the limitations currently found in ASP 2.0 / 3.0 programming. Visual Studio .NET is the only development environment built from the ground up for XML Web services. By allowing applications to share data over the Internet, XML Web services enable developers to assemble applications from new and existing code, regardless of platform, programming language, or object model.

4.4.2.7 .NET framework

The .NET Framework is an environment for building, deploying, and running Web Services and other applications. It consists of three main parts: the Common Language Runtime, the Framework classes, and ASP.NET.

.NET is the framework for which we develop applications. It sits in between our application programs and operating system. Applications developed for .NET run inside .NET and are controlled by .NET. It supports both Windows and web applications.

.NET provides an object oriented environment. It ensures safe execution of the code by performing required runtime validations. For example, it is never possible to access an element of an array outside the boundary. Similarly, it is not possible to a program to write into another programs area, etc. The runtime validations performed by .NET makes the entire environment robust.

Chapter 5: System Design

-EngAnnWatch-

Neighbourhood Watch Community Portal

5.1 System Design

System design is about creating effective solutions to build –EngAnnWatch- and managing the technical complexity of the resulting developments. The detailed system design is discussed in this chapter based on the functional and non-functional requirement listed in chapter 3 System Analysis. Whole system will be transform to diagram designs like use case diagram, sequence diagram, module definitions and finally an initial system prototype.

5.2 System Environment Diagrams

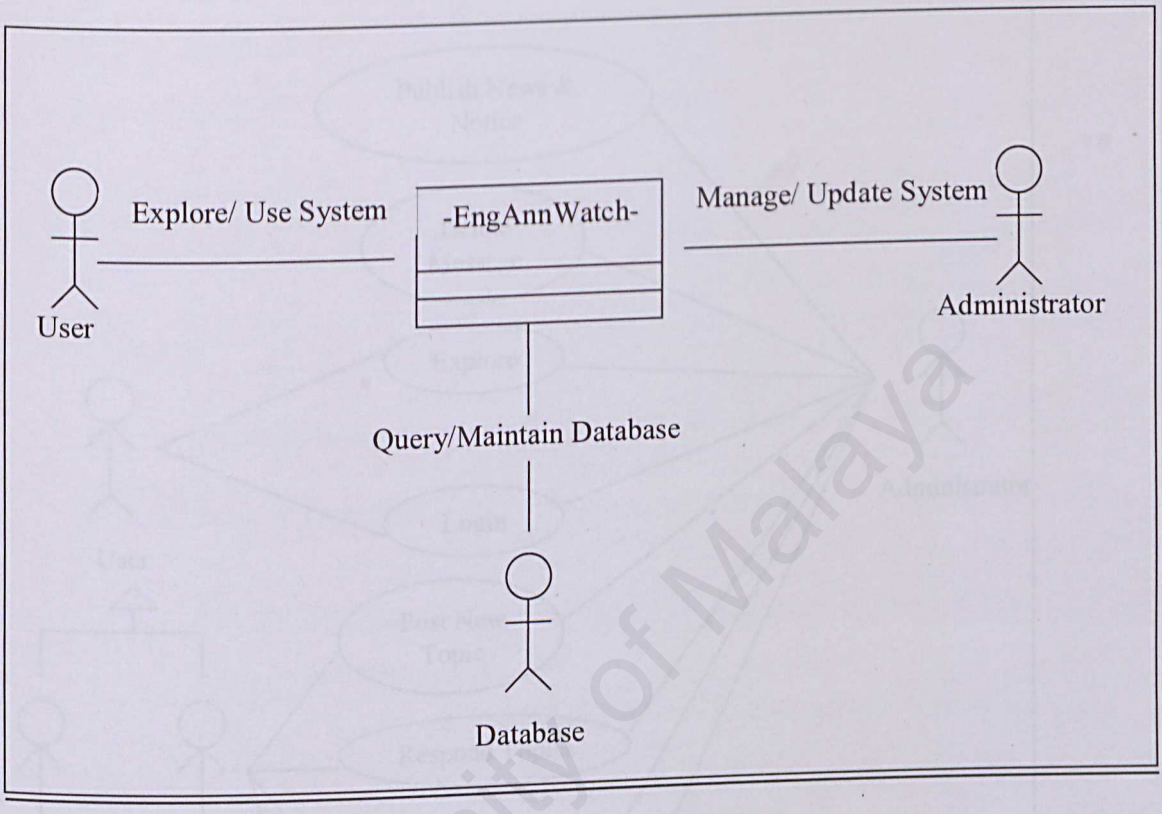


Figure 5.1: System Diagram for –EngAnnWatch-

5.2.1 Use Case Diagram

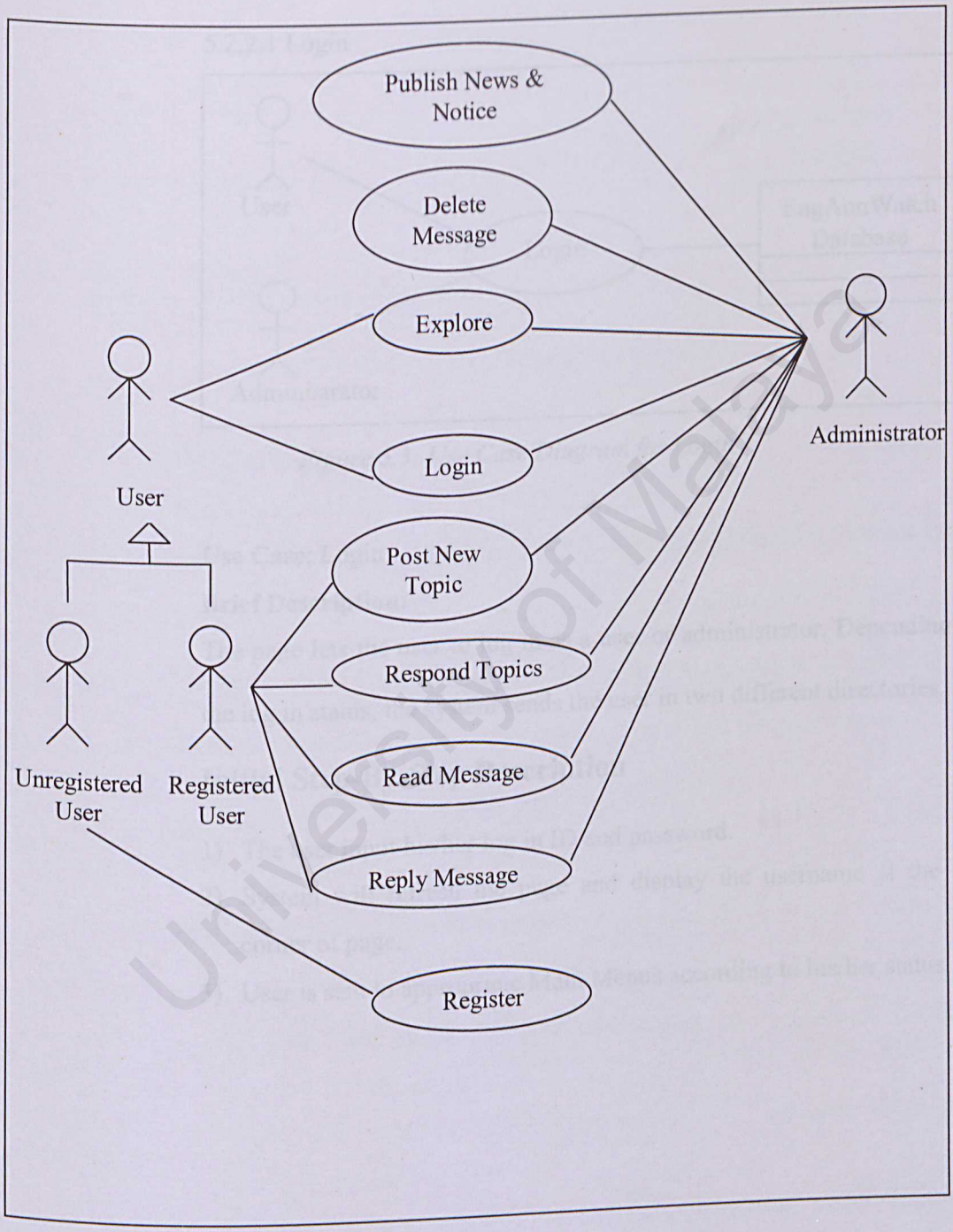


Figure 5.2: Use case diagram for –EngAnnWatch-

5.2.2 Module Definitions

5.2.2.1 Login

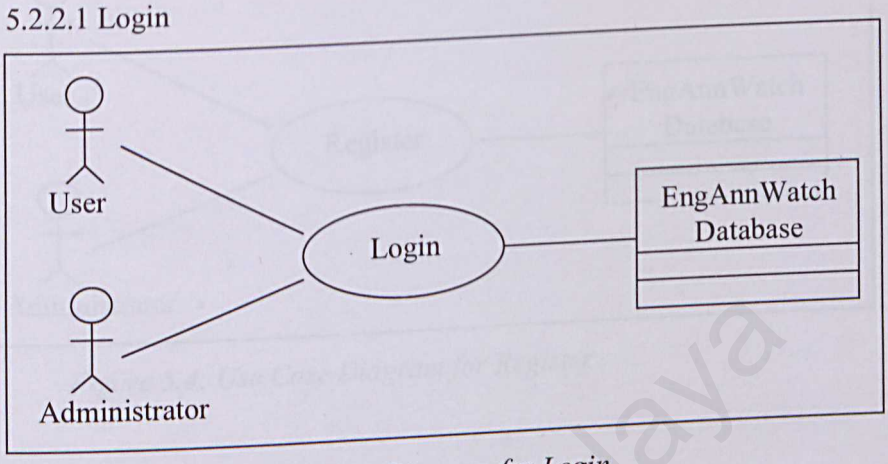


Figure 5.3: Use Case Diagram for Login

Use Case: Login

Brief Description:

The page lets the user to log in as a user or administrator. Depending on the log in status, the system sends the user in two different directories.

Initial Step-By-Step Description

1) The user input his/her log in ID and password.
2) System will refresh the page and display the username at the top corner of page.
3) User is sent to appropriate Main Menus according to his/her status.

5.2.2.2 Register

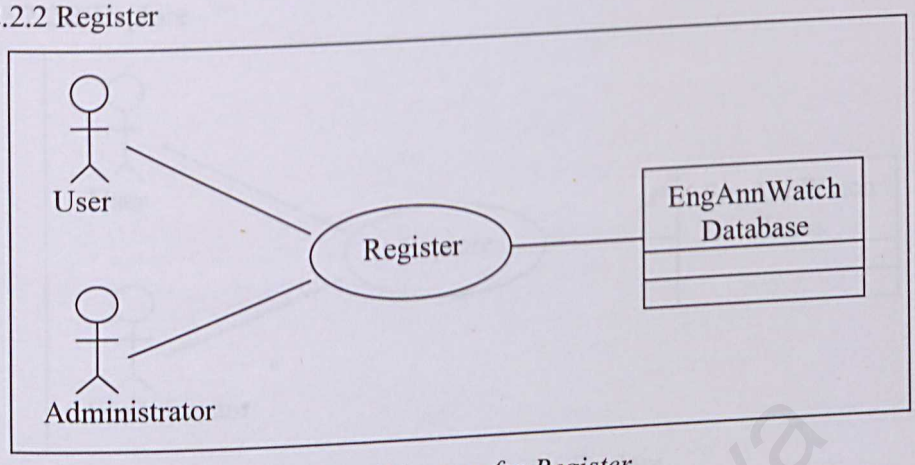


Figure 5.4: Use Case Diagram for Register

Use Case: Register

Brief Description:

To obtain the certain access level of this system, users need to register as a registered user. A new administrator member also needs to register himself into this system. The page lets the user to register as a registered user or administrator. They need to provide personal information, an identity username and a unique password.

Initial Step-By-Step Description

1) Click on 'Register', and system will display a register form.
2) The user input his/her personal information, username and unique password at the registration form.
3) System will insert the information entered into database, which is ordered by priority number.
4) Database updated and user is sent to appropriate Main Menus according to his/her status.

5.2.2.3 Explore

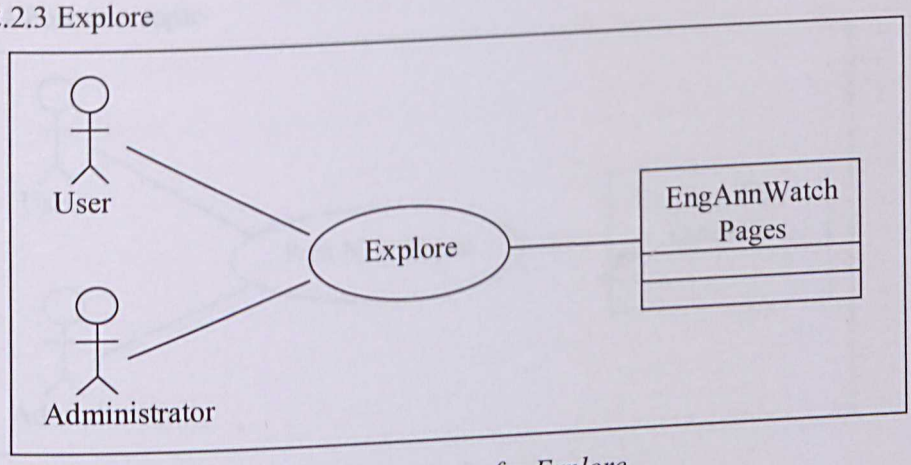


Figure 5.5: Use Case Diagram for Explore

Use Case: Explore

Brief Description:

To explore this system, users and administrators are not required to log in. They are able to explore this system but in a condition which is different access level. System will detect which group they belong to and display a corresponding Main Menus. So, they can explore on the link provided by this system.

Initial Step-By-Step Description

1) The users and administrator are required to log in to this system.
2) System will detect the unique id either he/she is user or administrator.
3) Once complete, system will display the corresponding Main Menus according to his/her status and display the explored pages.
4) Users can explore this system by click all the links in this web site.
5) Users also can read the contents of existing forums.

5.2.2.4 Post new topic

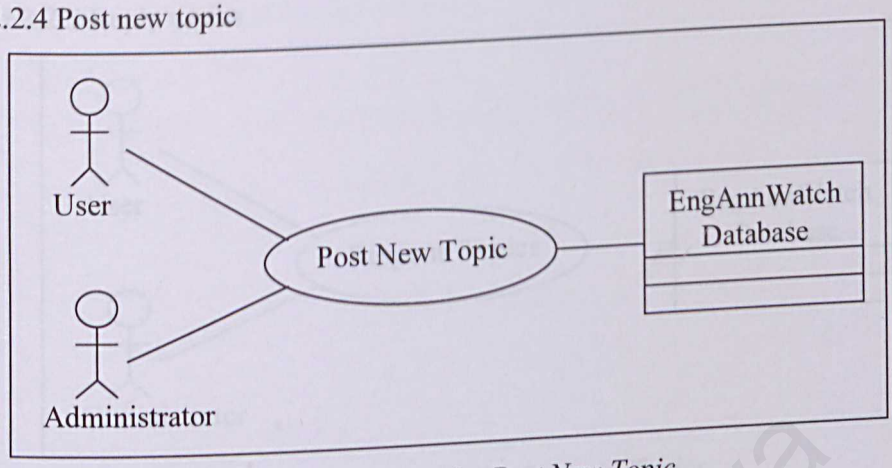


Figure 5.6: Use Case Diagram for Post New Topic

Use Case: Post new topic

Brief Description:

Users are required to login before start posting a new topic. User need to key in title of topic and descriptions. User who created that particular topic is able to edit the topic under his/her name but only administrator can delete the topic.

Initial Step-By-Step Description

1) Click on 'New topic' after login.
2) Enter title and description then click "Submit".
3) System will update database with latest forum.
4) Users are able to view the new topic.

5.2.2.5 Reply topics

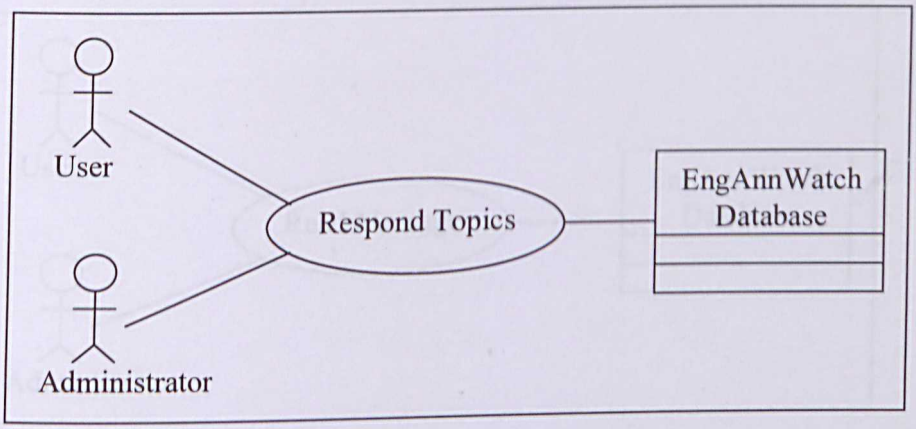


Figure 5.7: Use Case Diagram for Respond Topics

Use Case: Respond to existing topics

Brief Description:

Logged in users are able to post replies particular topics. Users have to click reply then key in sentences. Other users are able to view the replies and thus information is shared.

Initial Step-By-Step Description

1) View a certain topic and read.
2) Click "Reply" and type in sentences.
3) Click "Submit" and the system will update database.
4) Topic is replied.

5.2.2.6 Read the personal message/mail

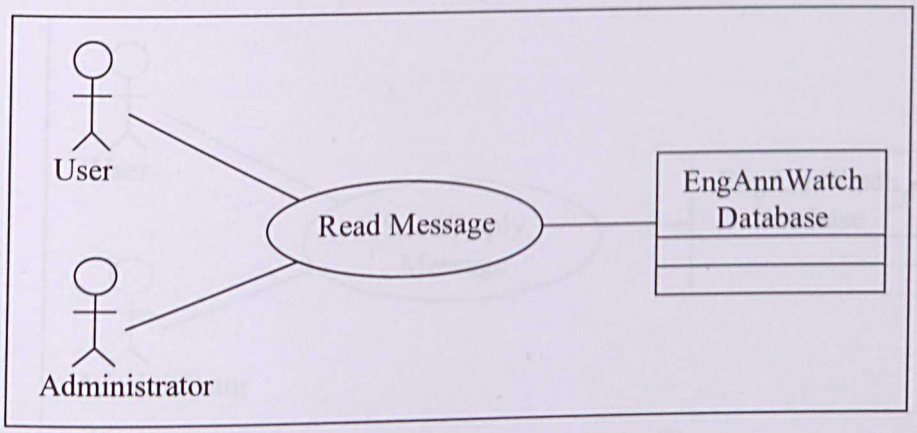


Figure 5.8: Use Case Diagram for Read Personal Mail

Use Case: Read personal message/mail

Brief Description:

This –EngAnnWatch- allow user to leave message to other members. It's similar to email but it's less advanced because no file can be attached. This function only support for short messages. Users can communicate through this function at different time because not every member will login at the same time.

Initial Step-By-Step Description

1) Login and click view my message.
2) System will retrieve data from database.
3) User reads private messages.

5.2.2.7 Send/Reply the personal message

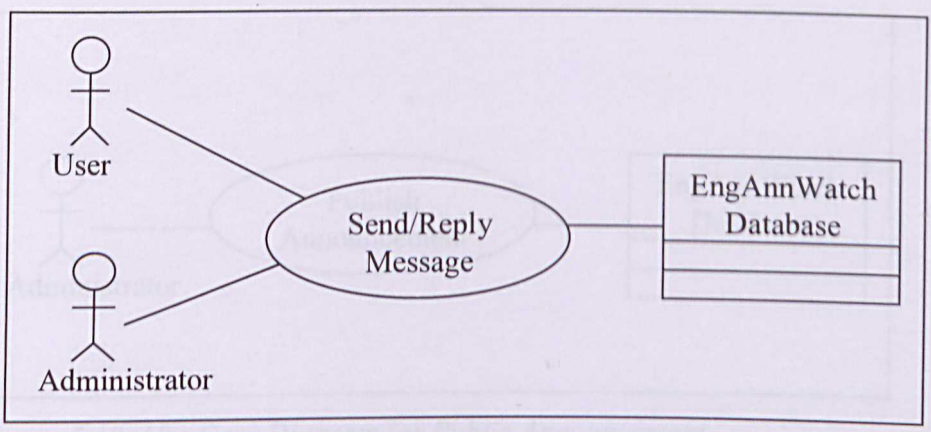


Figure 5.9: Use Case Diagram for Reply Personal Mail

Use Case: Send/Reply personal message

Brief Description:

Registered users can send personal message to other users. After users check and read their personnel messages, they can reply to the sender by clicking the 'Reply' button. Or other than that, users can choose to trash in the message. Replied messages will send to the sender once he/she online.

Initial Step-By-Step Description

1) Send/Reads personnel messages.
2) Click send/reply then key in sentences.
3) Click "Send" and system will send the reply.

5.2.2.8 Publish the news and notice

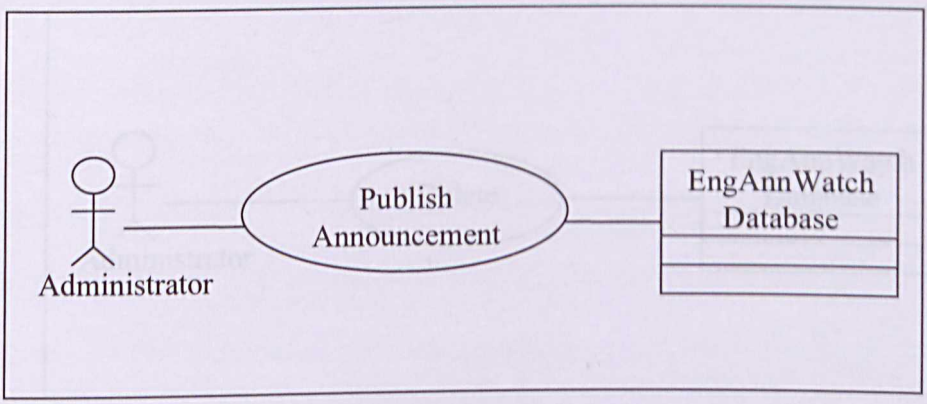


Figure 5.10: Use Case Diagram for Public Announcement

Use Case: Publish the announcement

Brief Description:

Administrators of –EngAnnWatch- are able to post notices/announcement to all the users. This function will broadcast the important message to users. User can view the detail of announcements by clicking the title of the announcement.

Initial Step-By-Step Description

1) Administrators are required to login.
2) Click "Announcement".
3) Enter announcement and click "Submit".
4) System will refresh database with new announcement

5.2.2.9 Delete inactive/rubbish message

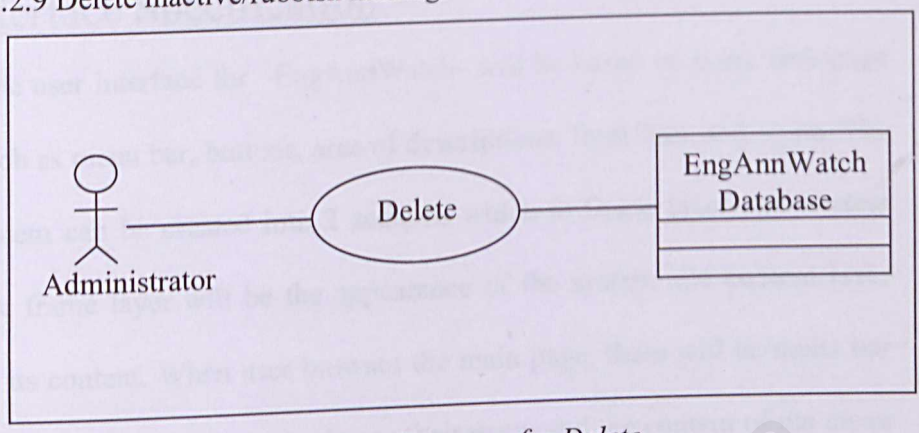


Figure 5.11: Use Case Diagram for Delete

Use Case: Delete message

Brief Description:

Administrators are required to delete unwanted message posted by irresponsible users. These messages are not suitable to be viewed by public or maybe the message is highly inactive for a certain time period. This function will help monitoring user's activities and reduces database burden.

Initial Step-By-Step Description

1) Login under administrator account.
2) Identified unwanted message.
3) Click 'Delete', system will remove the message and update the database.

.3 User Interface Specification

The user interface for –EngAnnWatch- will be based on basic web page design such as menu bar, buttons, area of descriptions, flash title, and so on. The entire system can be created into 2 sections which is frame layer and content layer. The frame layer will be the appearance of the system and content layer describes its content. When user browses the main page, there will be menu bar on the left of the screen. User can choose their menu and the content of the menu will be appear in the content layer. These are not really separate windows, although they may appear so to users.

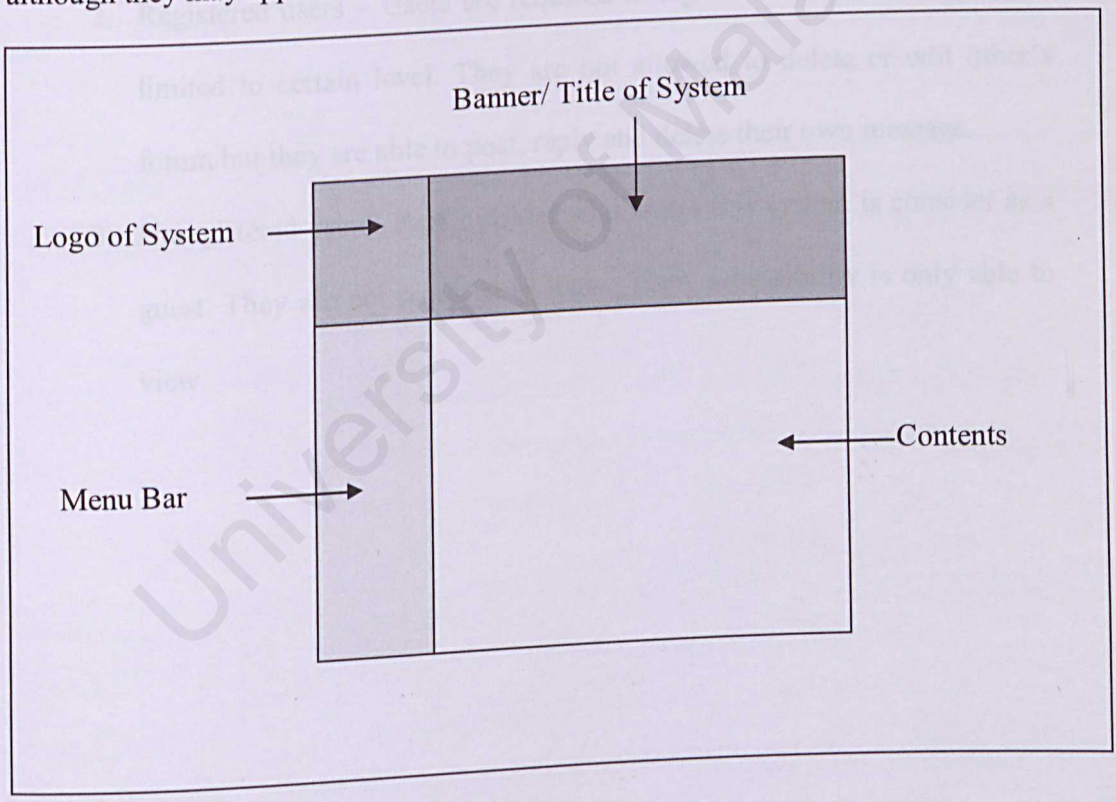


Figure 5.12: Story Board of User Interface

Frame layer is static located at the top and left of the screen. This layer contents the title of the system and menu navigation for user selection. Content

layer is dynamic area which according to user selection. This section describes the content of the chosen menu.

5.3.1 User Types

There will be 3 types of user interface categories:

1. Administrator – Administrator are required to login using the id and password. This type of user has full access to the system, they are able to edit, delete, post, move and so on.
2. Registered users – Users are required to login too. Their accessibility is limited to certain level. They are not allowed to delete or edit other's forum but they are able to post, reply and delete their own message.
3. Unregistered users– Any outsider who views this system is consider as a guest. They are not required to login. Their accessibility is only able to view.

5.4 Detailed System Architecture Design

This section provides anoverview of how the functionality and responsibilities of the system were partitioned and then assigned to subsystems or components. The main purpose here is to gain a general understanding of how and why the system was decomposed, and how the individual parts work together to provide the desired functionality.

5.4.1 Login

Use Case Name	Login
Priority	Essential
Trigger	None
Precondition	A registered user
Basic Path	1. Displays the login page as initial page. 2. The user enters ID and password and click on the "Submit" button. 3. The system checks the ID and password for verifications. 4. The authenticated user is directed to the Main Menu which indicates a successful login.
Alternative Paths	From step 2, the user can click on the Reset button to reenter ID and password.
Post Condition	Login successfully
Exception Paths	If the user enters an invalid ID or password, the system will require the user to enter the ID and password again.
Other	When the system is left idle for a period of time, the second attempt to access the system will require a login again from the user.

Table 5.1: Login

5.4.2 Register

Use Case Name	Register
Priority	Essential
Trigger	None
Precondition	Unregistered User
Basic Path	1. The user click on Register button at homepage 2. The system display the registration form 3. The user enters personal information, username and unique password. 4. The user click on Submit button to submit 5. The system insert the information into database which is ordered by priority number 6. Database updated
Alternative Paths	From step 5, if the required field is not entered, the system will return to the registration form with alerts.
Post Condition	Back to Main Menu once the user successfully registered.
Exception Paths	If the data is not inserting into the database, the user will asked to register again.
Other	None

Table 5.2: Register

5.4.3 Explore

Use Case Name	Explore
Priority	Essential
Trigger	None
Precondition	A login user
Basic Path	1. The user login using a valid ID and password 2. The system detects the ID to check whether user or administrator is. 3. The system display Main Menu according to the ID 4. The user click on the certain "link" to explore the

	information and read the existing forum 5. The system display the corresponding pages and information to the user
Alternative Paths	None
Post Condition	The corresponding pages is displayed
Exception Paths	None
Other	The user and administrator have different access level

Table 5.3: Explore

5.4.4 Post New Topic

Use Case Name	Post New Topic
Priority	Essential
Trigger	None
Precondition	A Login user
Basic Path	1. The user login with the valid ID and password 2. The user left-click on the New Topic on the Main Menu 3. The system display the New Topic Page 4. The user enter title and description and click on Submit button 5. The system updates the database with latest forum.
Alternative Paths	From step 4, the user can click on Cancel button and back to Main Menu
Post Condition	New forum is updated.
Exception Paths	If the topic cannot be post, the system will back to the New Topic page. The user will ask to reenter the information.
Other	Only the registered user and administrator can post new topic.

Table 5.4: Post new topic

5.4.5 Respond to Existing Topics

Use Case Name	Respond to Existing Topics
Priority	Essential
Trigger	None
Precondition	A login user
Basic Path	1. The user login using a valid ID and password 2. The user click on certain topic to read 3. The user click on Reply button 4. The system display the Reply Message Page 5. The user write the message and click on Submit button 6. The system update the database
Alternative Paths	From step 3, The user click on Cancel button return to Main Menu From step 5. The user click on Cancel button return to Main Menu
Post Condition	The topic is replied
Exception Paths	If the message cannot be sent, the system will back to the Reply Message Page, the user asked to sent again the message
Other	Unregistered user can only view the replies.

Table 5.5: Respond to topic

5.4.6 Read Personal Message / Mail

Use Case Name	Read Personal Message / Mail
Priority	Essential
Trigger	None
Precondition	A Login user
Basic Path	1. The user login using a valid ID and password 2. The user click on the View My Message on the Main Menu 3. The system retrieved data for the particular ID from the database

	4. The system displays the messages. 5. The user read the message
Alternative Paths	From step 3, the system cannot get the data, The system display error message to user
Post Condition	The system displayed the user's personal message
Exception Paths	None
Other	User can only read personal messages.

Table 5.6: Read personal message

5.4.7 Reply Personal Message

Use Case Name	Reply Personal Message
Priority	Essential
Trigger	None
Precondition	A Login user
Basic Path	1. The user login using a valid ID and password 2. The user click on Reply button on View My Message Page 3. The system display the Reply Personal Message Page 4. The user enter the message and click the Send button 5. The system sent the messages to the recipients
Alternative Paths	From step 4, the user can click the Cancel button return to the Main Menu.
Post Condition	The message is replied and the recipients received the message
Exception Paths	None
Other	User can only reply personal messages.

Table 5.7 Reply personal message

5.5 Deployment Diagram

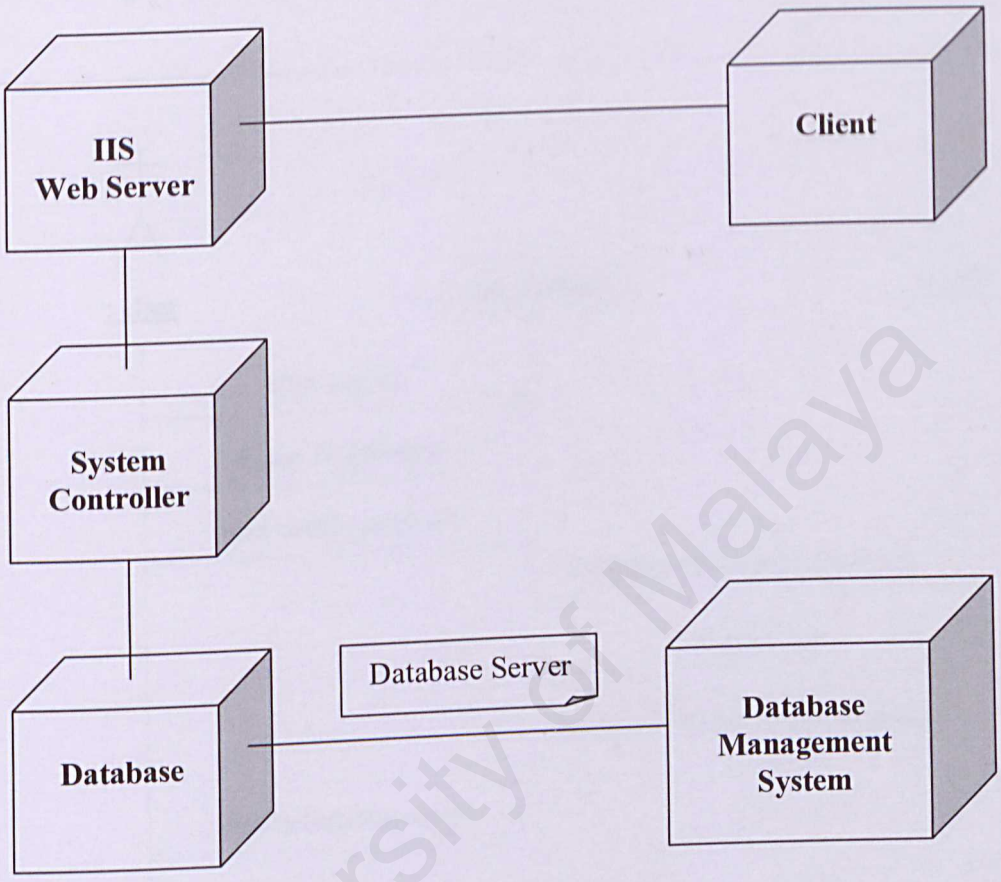


Figure 5.13: Deployment Diagram

The deployment diagram of *–EngAnnWatch-* consists of 5 main components which collaborate to each other to accomplish the service. The Client Application will display the user interface process and process application logic via the connection to IIS Web Server which the *–EngAnnWatch-* resides. The IIS Web Server supports the access to Database of the system. All the request of the Client Application such as insert, update, and delete records are control by the system controller before access to the Database. The Database Management System will perform the insert, update, and delete records in the tables of the Database according to the request of the Client Application.

5.6 Sequence Diagram

5.6.1 User Login

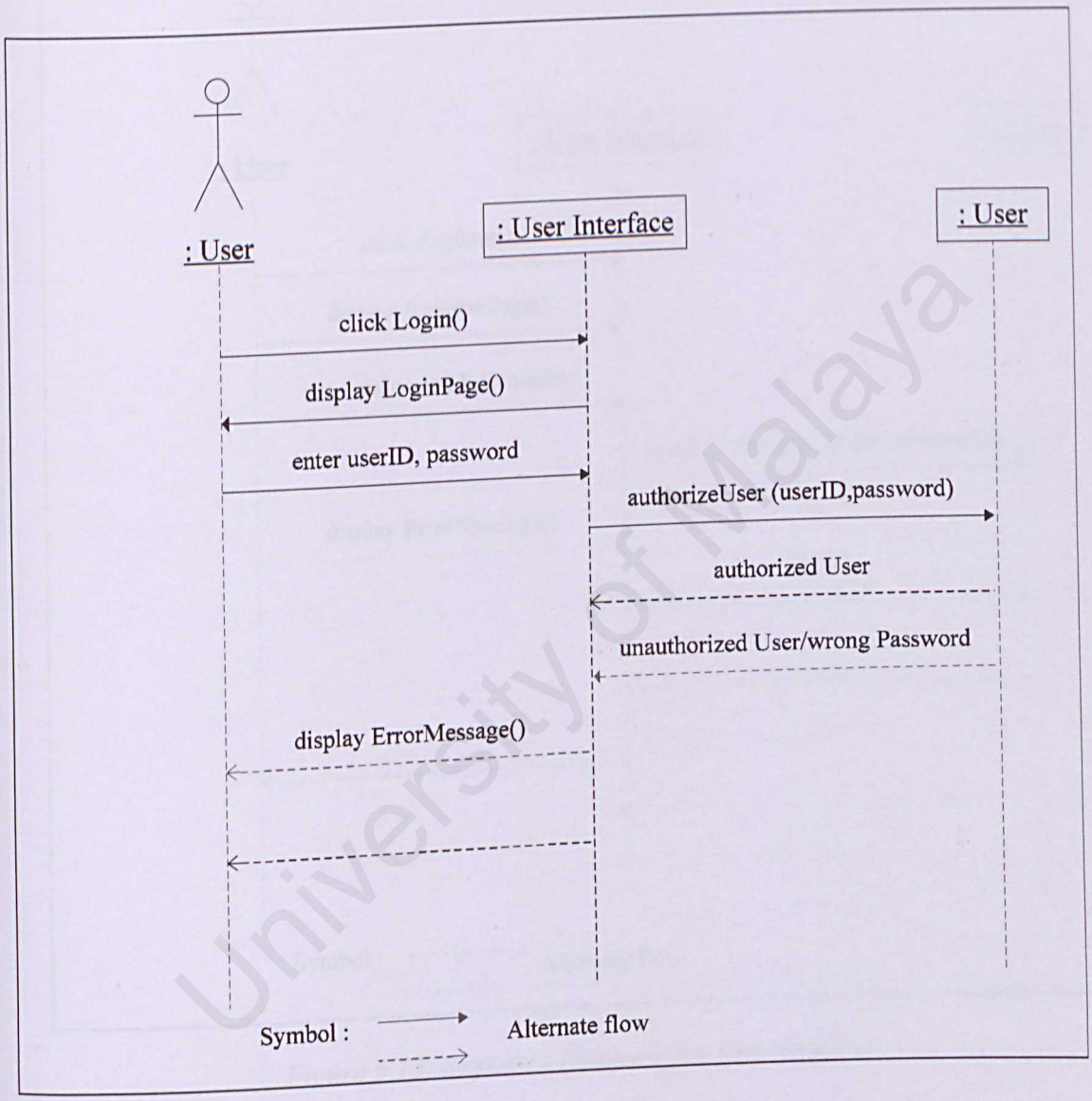


Figure 5.14: Sequence Diagram for User Login

5.6.2 User Register

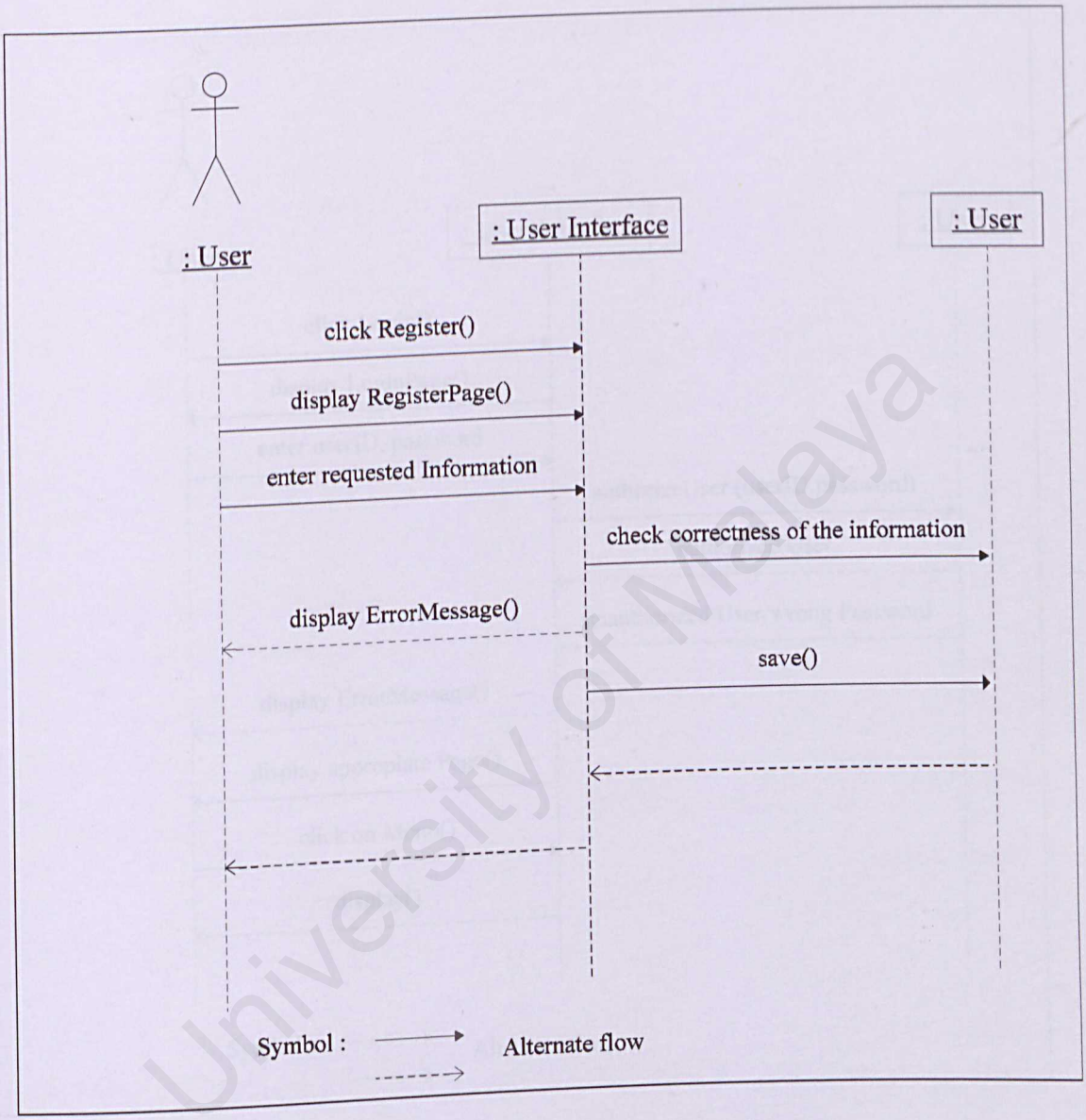


Figure 5.15: Sequence Diagram for User Register

5.6.3 User Explore

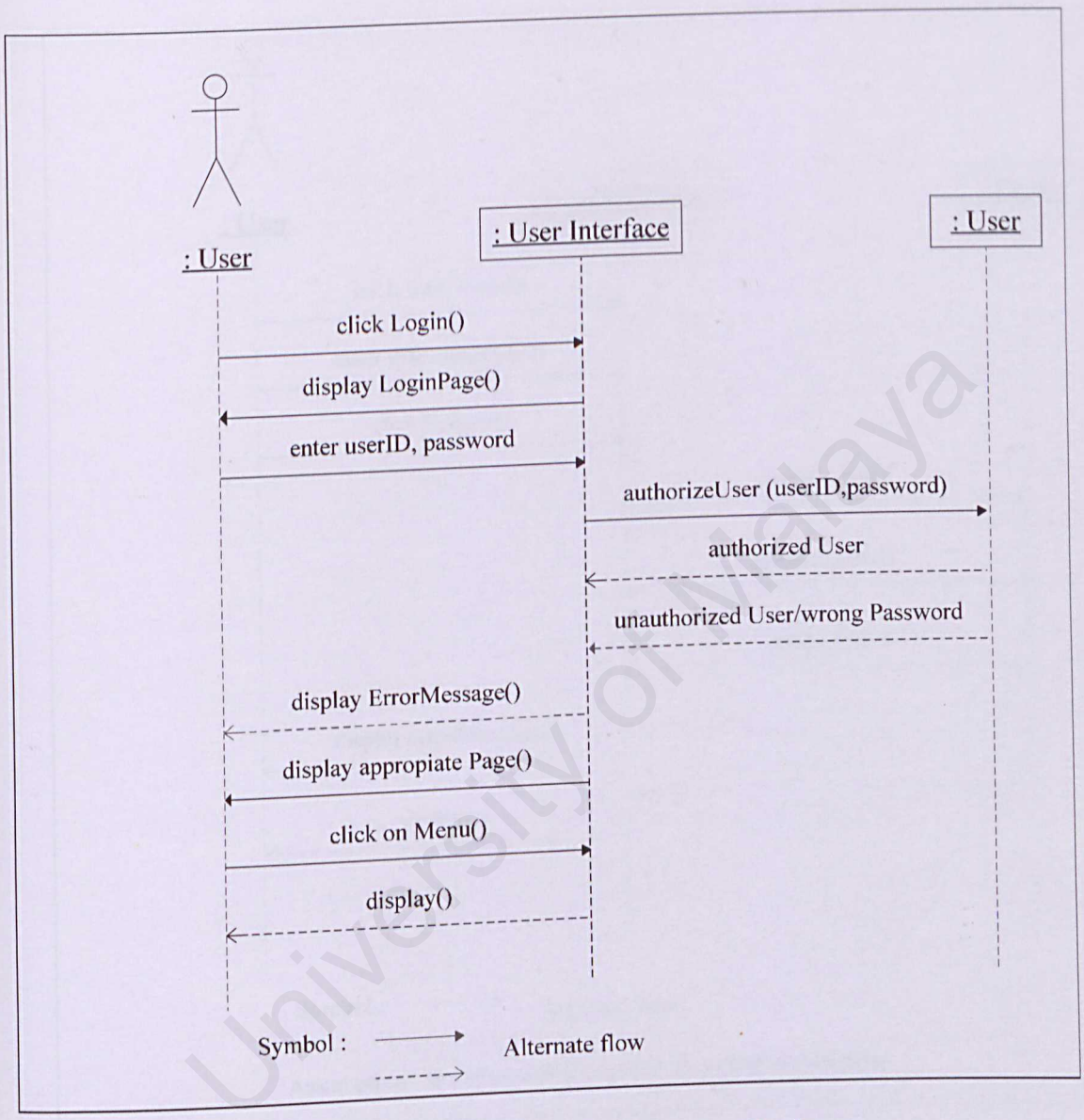


Figure 5.16: Sequence Diagram for User Explore

5.6.4 User Post New Topic

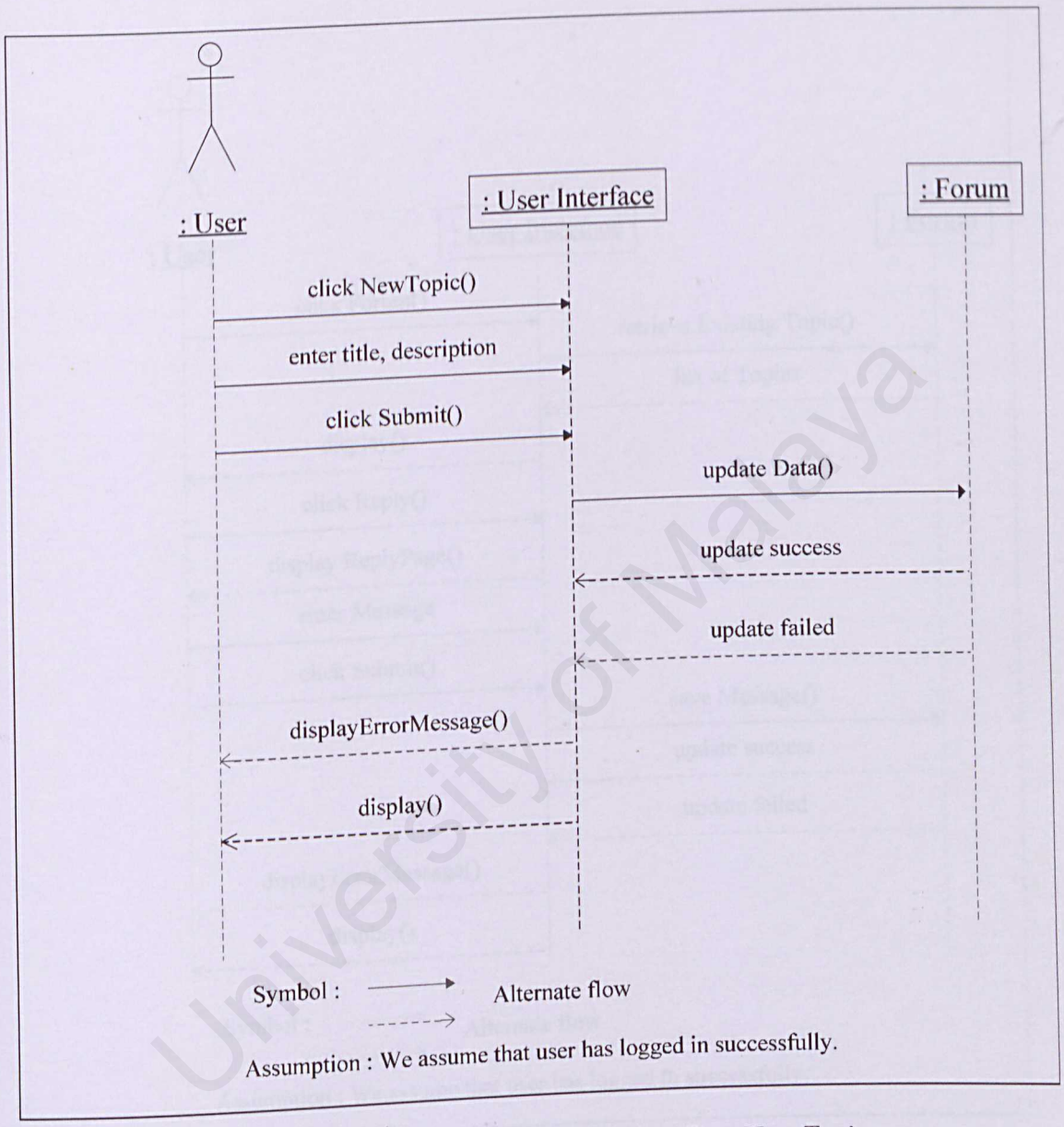


Figure 5.17: Sequence Diagram for User Post New Topic

5.6.5 User Respond to Existing Topic

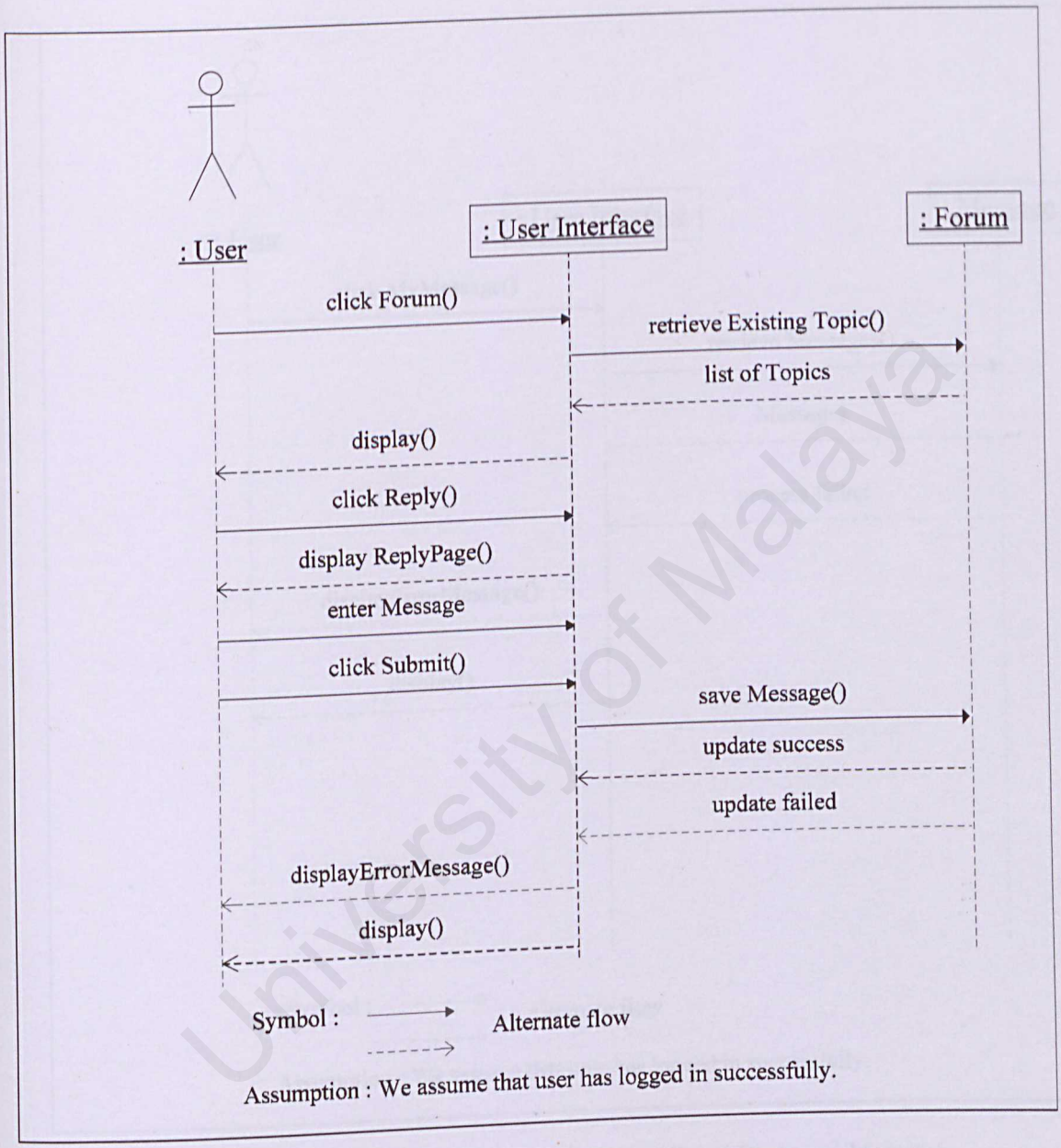


Figure 5.18: Sequence Diagram for User Respond to Existing Topic

5.6.6 User Read Personal Message

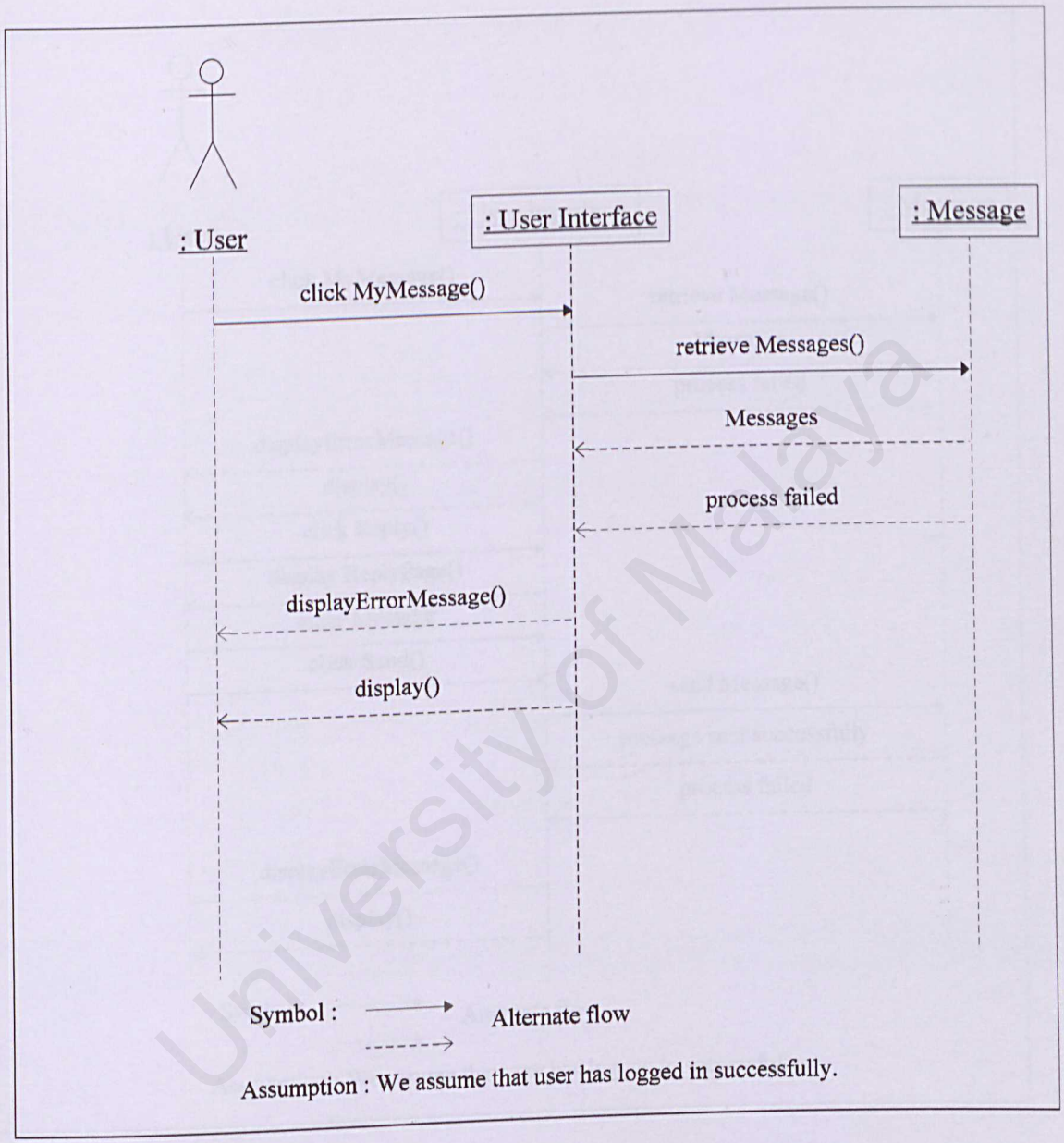


Figure 5.19: Sequence Diagram for User Read Personal Message

5.6.7 User Reply Personal Message

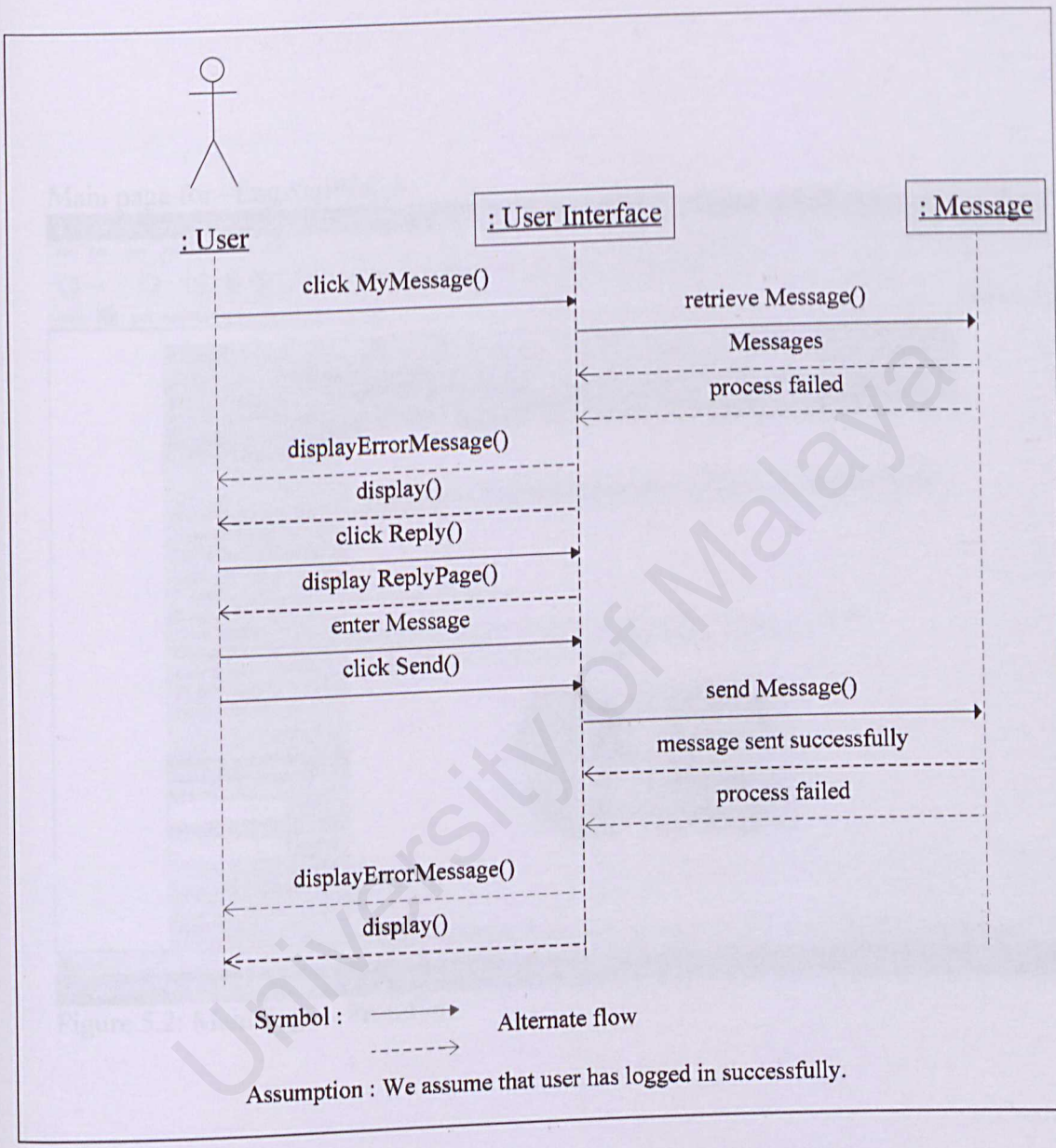


Figure 5.20: Sequence Diagram for User Reply Personal Message

5.7 System Prototype

Main page for –EngAnnWatch-

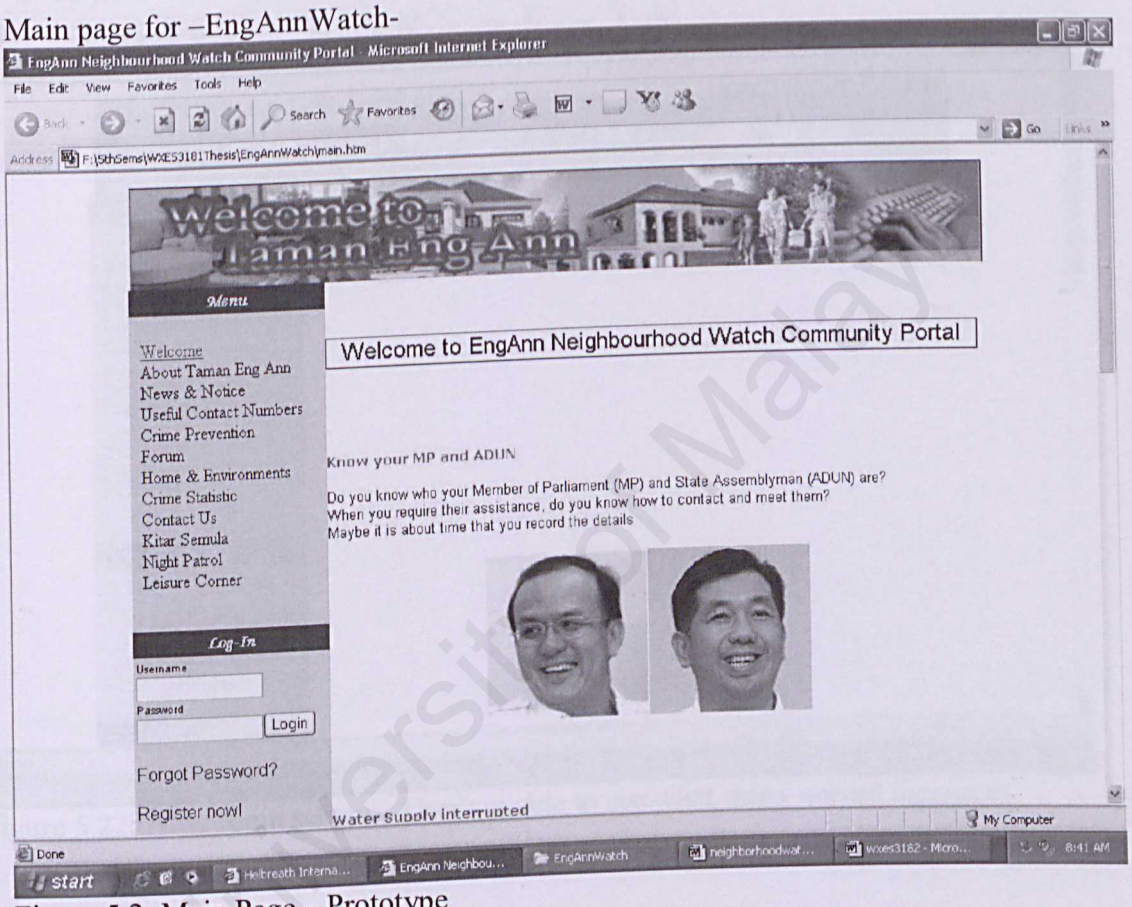


Figure 5.2: Main Page – Prototype

After logged in

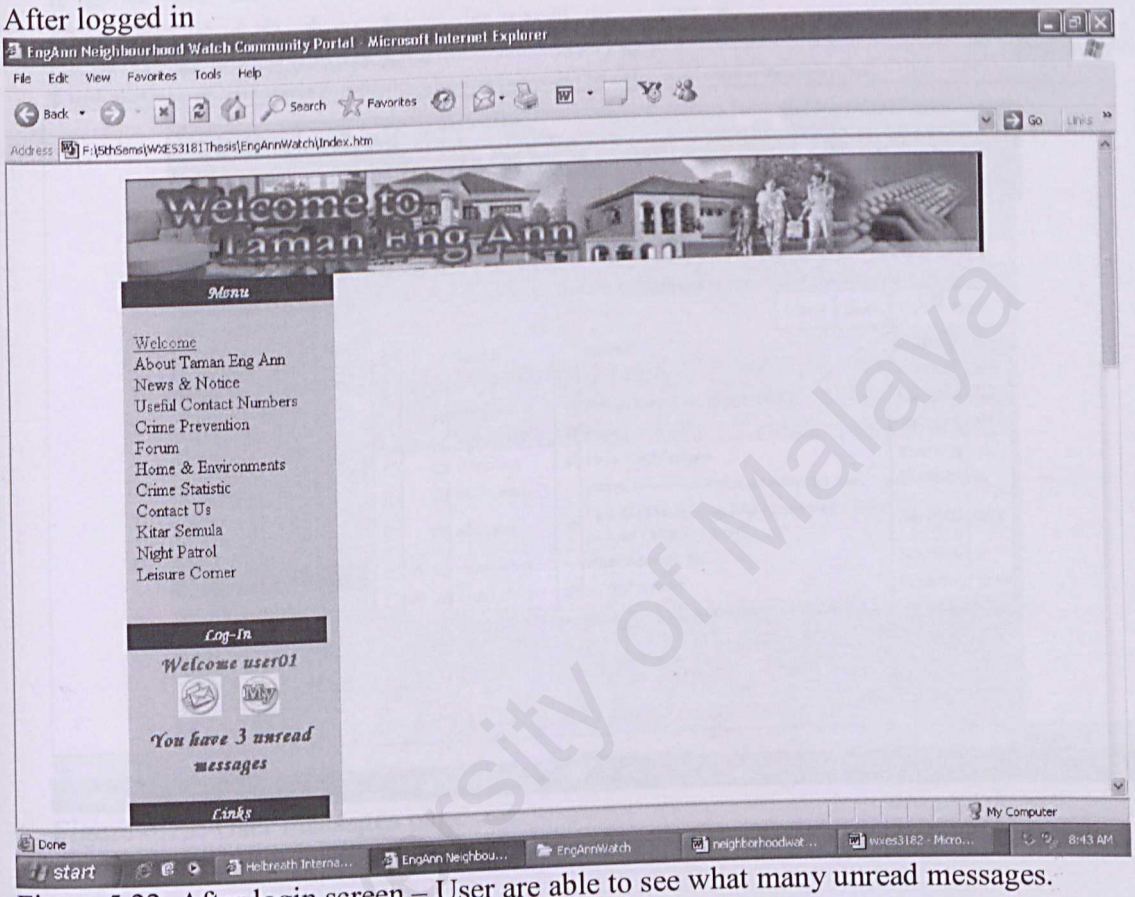


Figure 5.22: After login screen – User are able to see what many unread messages.

Private Messages

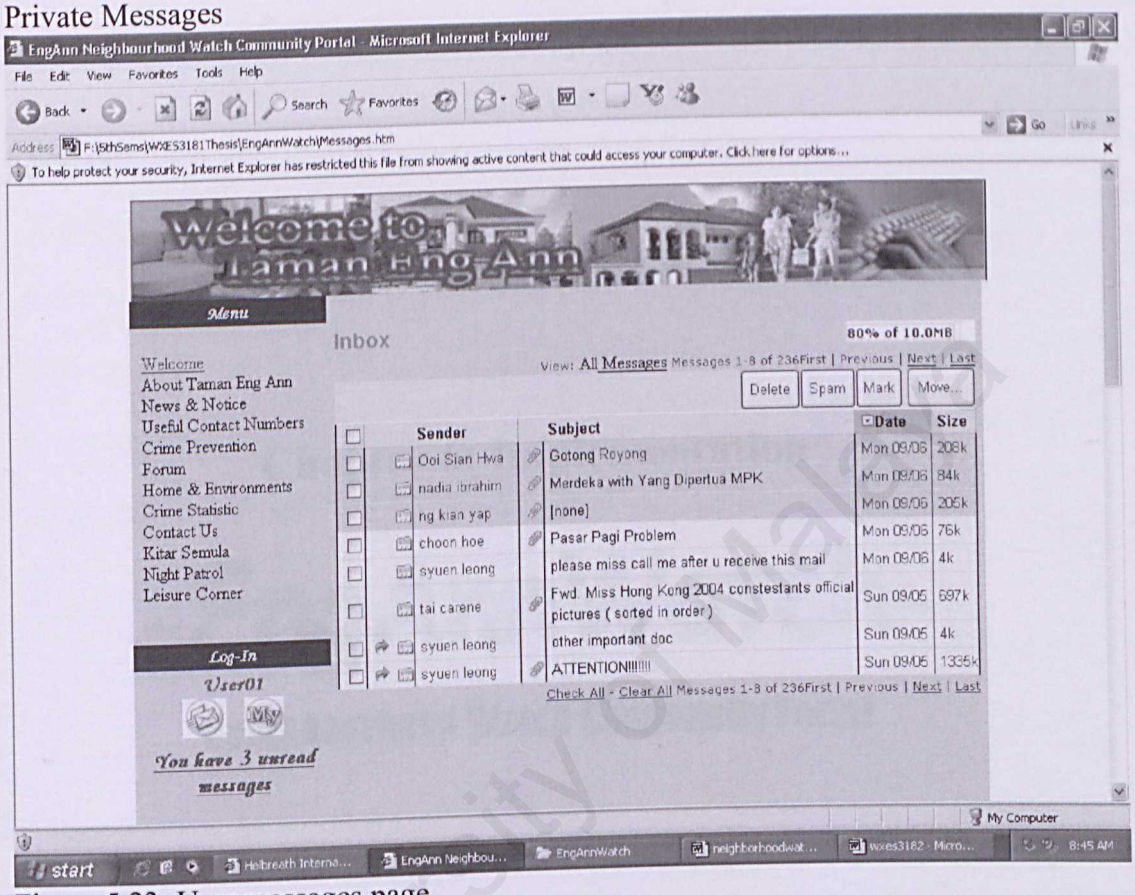


Figure 5.23: User messages page

Chapter 6: Implementation

-EngAnnWatch-

Neighbourhood Watch Community Portal

6.1 Chapter Introduction

System implementation is the process of converting system requirements and designs into workable program. The process starts from installation of development tools such as .NET framework, Adobe Photoshop, Macromedia Dreamweaver MX, Visual Studio .NET, IIS, and MDAC. All these involve modeling, storyboard designing, system flow design, user interface design and debugging. As Rapid Application Development methodology is used as the development methodology, operational prototypes are developed throughout the duration once every new models and module is completed. The programming technology

6.2 Implementing WebUserCtrl (.ascx)

In addition to the built-in server controls provided by ASP.NET, EngAnnWatch defined its own controls using web forms pages. The .ascx extension is used to indicate such controls. User controls are included in a Web Forms page using a REGISTER directive:

```
<%@ Register TagPrefix="CC" TagName="Header" Src="Header.ascx" %>
<%@ Register TagPrefix="CC" TagName="Footer" Src="Footer.ascx" %>
```

Figure 6.1: WebUserCtrl.ascx

When a Web Forms page is treated as a control, the public fields and methods of that web form are promoted to public properties and method of the control as well. In other words, when the above codes are called in a .aspx page, the page will display programmatically the contents. This method will reduce total cost work.

6.2.1 Header.ascx

This file is called in every pages of the EngAnnWatch system indicating the header of the system.

Figure 6.2: Header

6.2.2 Footer.ascx

This file is called in every pages of the EngAnnWatch system indicating the footer of the system.

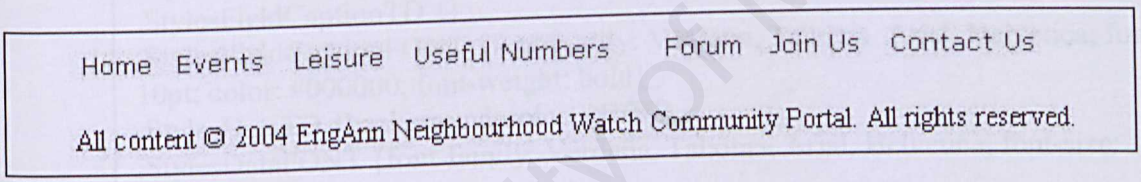


Figure 6.3: Footer

6.2.3 Cascading Style Sheet (.css)

A cascading style sheet file is used to define a cascading style sheet for a web page. The purpose is to provide more control over the fonts, colors, layout, etc. that go into the web page than could be provided by raw HTML. Also, since the cascading style sheet file is separate from the HTML files, it can be shared (or even inherited; a little outside the scope of this document) by multiple web pages to help provide a consistent look-and-feel across a web site. It is not yet fully supported by all browsers; newer versions of all popular browsers do provide some CSS support, however. Example:

```
.SearchModFormTABLE {background-color: #ffffff border-width: 100; width:
100%}
.SearchModFormHeaderTD {background-color: #B8E8FF; width: 100%}
.SearchModFormHeaderFONT {font-family: Arial, Tahoma, Verdana, Helvetica;
font-size: 12pt; color: #FF0000; font-weight: bold}
.SearchModFieldCaptionTD {background-color: #F5FCFF}
.SearchModFieldCaptionFONT {font-family: Verdana, Tahoma, Arial, Helvetica;
font-size: 10pt; color: #000000; font-weight: bold}
.SearchModDataTD {background-color: #F5FCFF}
.SearchModDataFONT {font-family: Verdana, Tahoma, Arial, Helvetica; font-size:
10pt; color: 000000}
.SearchModColumnTD {}
.SearchModColumnFONT {font-family: Verdana, Tahoma, Arial, Helvetica; font-
size: 10pt; color: #000000; font-weight: bold}
.SearchModRecordSeparatorTD {background-color: #F5FCFF}
.StylesFormTABLE {background-color: #ffffff border-width: 100; width: 100%}
.StylesFormHeaderTD {background-color: #B8E8FF; width: 100%}
.StylesFormHeaderFONT {font-family: Arial, Tahoma, Verdana, Helvetica; font-size:
12pt; color: #FF0000; font-weight: bold}
.StylesFieldCaptionTD {}
.StylesFieldCaptionFONT {font-family: Verdana, Tahoma, Arial, Helvetica; font-size:
10pt; color: #000000; font-weight: bold}
.StylesDataTD {background-color: #ffffff}
.StylesDataFONT {font-family: Verdana, Tahoma, Arial, Helvetica; font-size: 10pt;
color: 000000}
.StylesColumnTD {background-color: #B8E8FF;}
.StylesColumnFONT {font-family: Arial, Tahoma, Verdana, Helvetica; font-size:
12pt; color: #FF0000; font-weight: bold}
.StylesRecordSeparatorTD {background-color: #ffffff}
```

Figure 6.4: CSS style sheet

6.3 Database

EngAnnWatch required a database to store in formations such as user id and password, forums' messages, news, and articles. Microsoft Access is considering the best and most suitable for EngAnnWatch because of its features. Below are some screenshot about the database design and development.

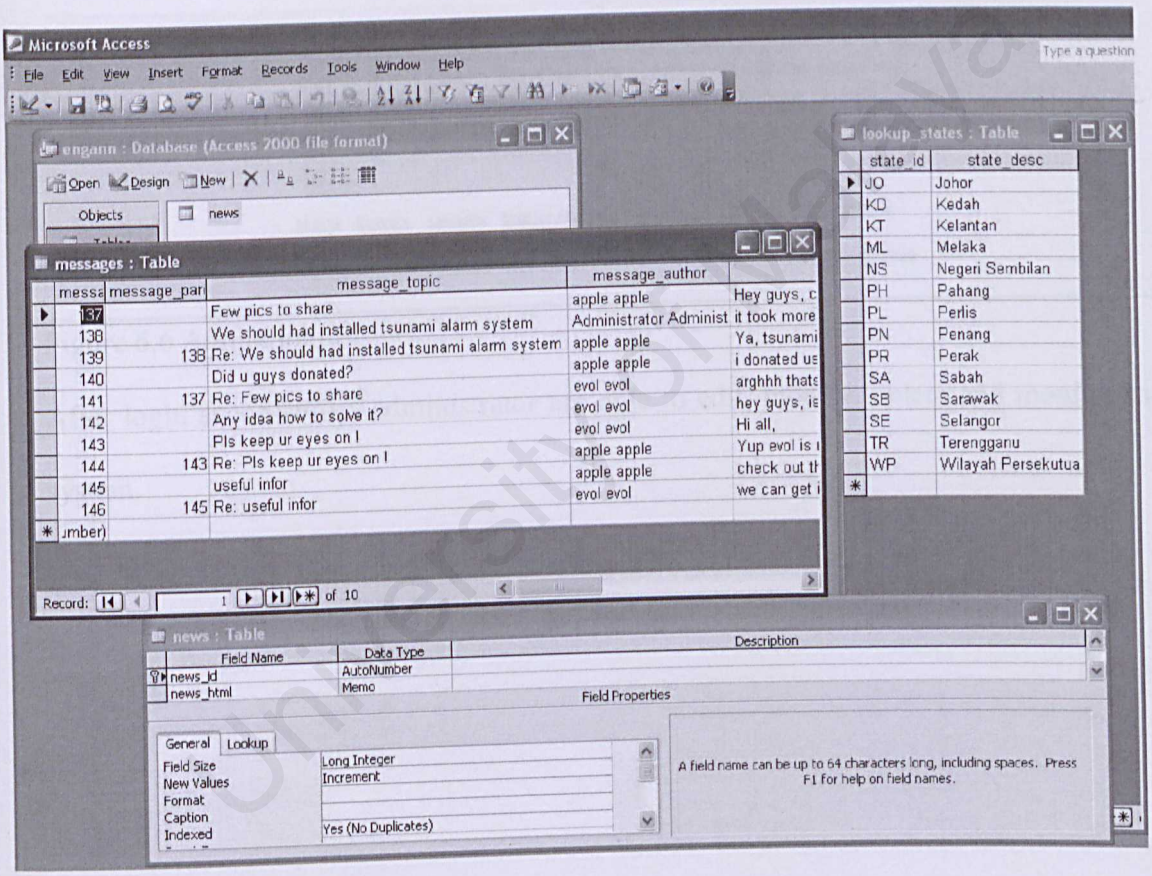


Figure 6.5: Database

6.4 Administration

There is 1 feature about EngAnnWatch which is the administrator of the system has some extra access right to the system. Administrators are required to login with the password before they proceed to the administration pages.

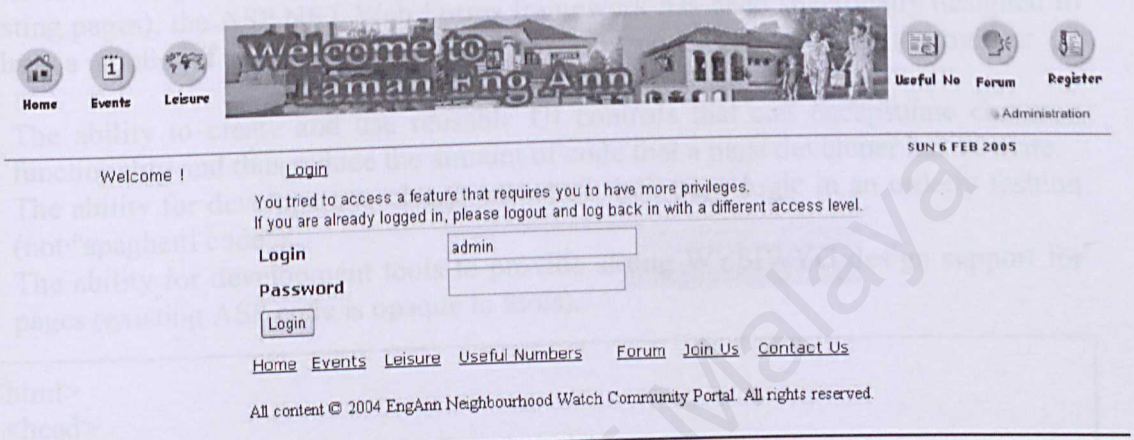


Figure 6.6 Admin login

After login successfully, administrator are able to edit, modify, delete and monitor the system.

6.4 ASP.net C#

The ASP.NET Web Forms page framework is a scalable common language runtime programming model that can be used on the server to dynamically generate Web pages.

Intended as a logical evolution of ASP (ASP.NET provides syntax compatibility with existing pages), the ASP.NET Web Forms framework has been specifically designed to address a number of key deficiencies in the previous model. In particular, it provides:

1 The ability to create and use reusable UI controls that can encapsulate common functionality and thus reduce the amount of code that a page developer has to write.
2 The ability for developers to cleanly structure their page logic in an orderly fashion (not "spaghetti code").
3 The ability for development tools to provide strong WYSIWYG design support for pages (existing ASP code is opaque to tools).

```
<html>
 <head>
 <title>EngAnnWatch Community Portal</title>
 <meta name=vs_targetSchema
content="http://schemas.microsoft.com/intellisense/ie3-2nav3-0">
 <meta name="CODE_LANGUAGE" Content="C#">
 <meta http-equiv="pragma" content="no-cache">
 <meta http-equiv="expires" content="0">
 <meta http-equiv="cache-control" content="no-cache">

 <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1"><link
rel="stylesheet" href="Site.css" type="text/css">
 <link rel="stylesheet" href="Default.css" type="text/css">
 <link rel="stylesheet" href="Header.css" type="text/css">
 <link rel="stylesheet" href="Footer.css" type="text/css"><style type="text/css">
<!--
a:link {
        text-decoration: none;
        color: #3300FF;
}
a:visited {
        text-decoration: none;
        color: #3300FF;
}
a:hover {
        text-decoration: underline;
}
```

```
a:active {
        text-decoration: none;
}
-->
</style></head>
 <body class="PageBODY">

 <form method="post" runat="server"><CC:Header id="Header" runat="server"/>
 <input type=hidden id=p_ArticlesMod_article_id runat=server />
 <input type=hidden id=p_DiscMod_mid runat=server />

<table>
 <tr>
  <td valign="top">

<table width="100%"  border="0">
 <tr>
  <td><table width="80%"  border="1" bordercolor="#00CCFF" bgcolor="#FFFFFF">
   <tr>
    <td><a href="default.aspx">Home</a></td>
   </tr>
   <tr>
    <td><a href="ContactNumber.aspx">Useful Contact Number</a> </td>
   </tr>
   <tr>
    <td><a href="CrimePrevent.aspx">Crime Prevention</a> </td>
   </tr>
   <tr>
    <td><a href="Maintenance.aspx">Home Maintenance</a></td>
   </tr>
   <tr>
    <td><a href="statistic.aspx">Crime Statistic</a> </td>
   </tr>
   <tr>
    <td><a href="recycle.aspx">Kitar Semula</a> </td>
   </tr>
   <tr>
    <td><a href="Events.aspx">Events</a></td>
   </tr>
   <tr>
    <td><a href="Leisure.aspx">Leisure Corner</a> </td>
   </tr>
   <tr>
    <td><a href="Forums.aspx">Forum</a></td>
   </tr>
   <tr>
    <td><a href="contact.aspx">Contact Us </a></td>
   </tr>
```

```
</table>
    </td>
  </tr>
</table>


 <CC:NewsMod id="NewsMod" runat="server"/>



 <CC:DiscMod id="DiscMod" runat="server"/>



</td><td valign="top">

 <CC:ArticlesMod id="ArticlesMod" runat="server"/>

</td><td valign="top"> 




 </td>
 </tr></table><hr size="1" color="#dd0000" width="98%">

<CC:Footer id="Footer" runat="server"/>

</form>
</body>
</html>
```

Figure 6.7 ASP.NET

6.5 Debugging

Debugging is an activity to detect flaws and bugs within the system.

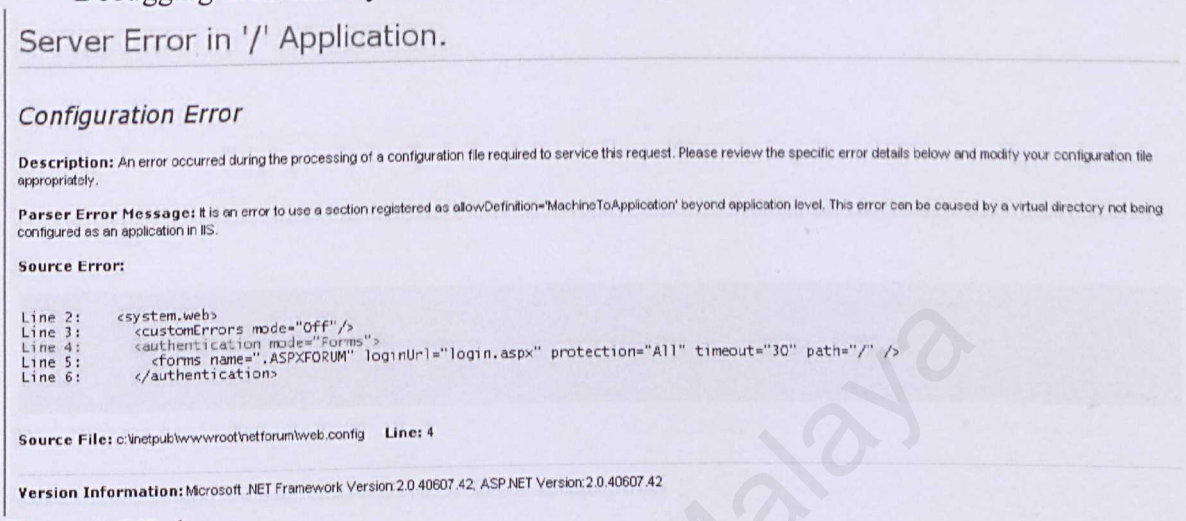


Figure 6.8 Debug

6.5 Summary

Chapter 6 presents the system implementation in terms of the asp.net technology, webUserCtrl, CSS style sheet, and debugging. As Rapid Application Development methodology is chose to used, therefore implementations of the system together with integration is carried out all the while during the development duration.

Chapter 7: Testing & Maintenance

-EngAnnWatch-

Neighbourhood Watch Community Portal

7.1 Chapter Introduction

System testing is an important phase in the development of EngAnnWatch. All of the models, scripting, software, processes, and hardware involved in the development of EngAnnWatch must be tested thoroughly. System testing process is carried out throughout the development duration of the system whenever new integrations are made and another full testing is done once the system is completed.

As the implementation of system is based around the requirement specification, system testing is therefore essential to detect as well as ensure that it is able to fulfill all the requirements. Due to errors that have been done during the system development and design stage, faults and failures may happen even when the entire system has been developed. The main idea of system testing is to demonstrate the correctness of the program, identify the errors in the system. The errors found during the system testing will be fixed before the final product is presented.

7.2 Type of testing applied

Below are the testing methods which have been applied:

1. Component Test
2. Integration Testing
3. System Testing
4. Bottom-Up Testing
5. Server-Client Testing

7.3 Component Test

Component test focuses on individual module that had been developed. Each module had been tested and error had been identified and corrected during the development phase. Below are the modules which had been tested:

1.Login()
2.Database()
3.Admin()
4.Display()
5.Forum()
6.Post()
7.Delete()
8.Edit()
9.Header()
10. Footer()
11. Article()

7.4 Integration Testing

The integration testing process is carried out after the unit testing process has been done. When satisfied, that individual component or module is combined into the main storyboard. Several independent modules' integration can cause some unpredicted and unexpected errors. Integration testing is a systematic approach for constructing the application while conducting tests to uncover errors associated with interfacing of different components or modules.

One of the objectives of conducting integration testing is to determine the defectiveness of the modules. For example, image buttons in the menu page was tested whether it calls other modules or not and also whether the image button changes on situations like mouse over, mouse down and button unavailable.

Another objective is to ensure that the different unit- tested modules in EngAnnWatch system can function smoothly together to the exaction of the system requirements. The major concerns here are the shared variable, models and linkage.

Bottom-up testing method has been used in EngAnnWatch system testing. Small and sub-module had been tested first and then tested the other linked parent sub-module.

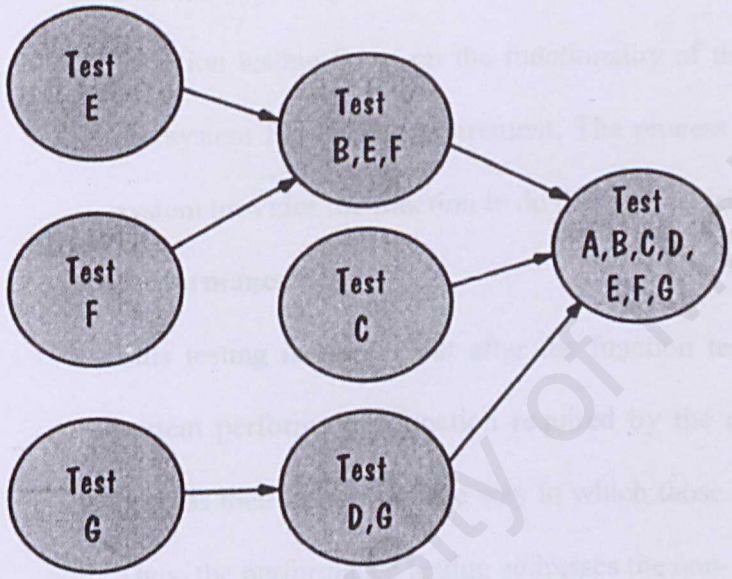


Figure 7.1 Bottom-Up testing

7.5 System Testing

The entire system will be validated once it is completed. Validation is done by carrying out the system testing process. Testing the whole system is very different from unit and integration testing. When doing the system testing process, the entire system's attributes are taken into account, these includes; supporting software, supporting hardware, aspx files, operating system and the whole computer system.

The objective of system testing is to verify and validate the functional and non-functional requirements of the system. The functional and non- functional requirements of EngAnnWatch system are as defined in earlier chapters.

There are several types of system testing that can be used to test a software system. But only three types of system testing are used for this system:

1. **Function Testing**

   Function testing focus on the functionality of the system. It is based on the system functional requirement. The process is to check whether the system provides the function to do the task, which it is suppose to do.

2. **Performance Testing**

   This testing is carried out after the function testing process. When the system performs the function required by the requirements, the testing process then turn to test the way in which those functions are performed. Thus, the performance testing addresses the non- functional requirements. The purpose of this testing is to test the run time performance of this system within the context of an integrated system. It involves both hardware and software instruments.

7.7 Server-Client Testing

EngAnnWatch is a web-based system and it involved of client-server architecture. Thus, another testing had been done which the source code and the system had been installed into server; the testing progress had been done by using another pc located at in

different network from the server. The main elements to test at here are system performance, respond time, page opening time, and integrity.

7.8 Maintenance

Maintenance is to repair system faults, changing the system by correct deficiencies in the way to meets its requirements. Maintenance process had been done throughout the phases from system implementation until system testing.

Chapter 8: System Evaluation

-EngAnnWatch-

Neighbourhood Watch Community Portal

8.1 CHAPTER INTRODUCTION

This is the final phase in the life cycle of this project. During the development process, various problems were encountered. So this chapter will highlight some of the problems faced throughout the project duration and also with the solution that has been taken to solve it. Besides that, this chapter also will include the evaluation of the system to identify its strengths and limitations. As suggestions to further improvements of this system, the possibilities to enhance the system are also explored.

8.2 Problems Encountered

8.2.1 Lack of Knowledge in ASP.NET

Lack of experience and knowledge has proved to be an obstacle in the beginning. This is because ASP.NET requires lots of patience and a high performance machine. The new exposure of the new technologies of products such as Visual Studio .NET, Macromedia Dreamweaver, Adobe Photoshop, and Internet Information Services has increased the learning curve before starting the development of EngAnnWatch.

Surfing the internet for information and reading up on the concept of ASP.NET which include the features of web based applications, were some of the approached taken to overcome this problem. Most of the confusions are resolves by reading up on relevant materials and most importantly advice and guidance from course mates and supervisor.

8.2.2 Difficulty in Obtaining EngAnn Information

Taman Eng Ann is a medium residential area located at Klang, the lack of information about Taman Eng Ann on internet was not easy to find related links. Links to Taman Eng Ann information were very limited. In order to solve this problem, personal interview has been done from time to time by asking local residents about Taman Eng Ann. Besides that, analysis need to be done on the information provided from the residents to make sure it is relevant. This is also to make sure the information is correct and does not mislead the users to have gained the wrong information.

8.3 System Strengths

The following points illustrate the overall strength of EngAnnWatch

8.3.1 Attractive and User- Friendly Interface

The interface of the system is rather simple and easy to use. The system makes full use of Menu and Navigation techniques, allowing users to visual objects to navigate through the system. Clear, precise instructions guidance is also given to guide the users. Hence, users will find EngAnnWatch easy to use and browse.

8.3.2 Useful Information

EngAnnWatch provides very useful information such as emergency contact numbers. This contact numbers are in specified

criteria, for example, the nearest police station is 03-33712222 instead of police general phone number 999. At EngAnnWatch, you able to find tons of useful information such as recycle center address, type of material to recycle, leisure places, crime prevention tips and so on.

8.3.3 Administration Command

EngAnnWatch provides a page for administration to access database no matter where he/she is. Administrations are able to monitor the system regardless of his/her location as long as they are connected to internet.

8.4 System Constraints

The following list expresses the limitations of EngAnnWatch

8.4.1 Unable Upload Pictures

The users of EngAnnWatch are not able to upload pictures by using this system. However, users may upload their pictures onto a pictures hoster and then paste their link/url in EngAnnWatch.

8.4.2 Password Recovery – Manual Method

In EngAnnWatch, there is no password recovery function in case users forgot their password. However, user may email the admin for

the password recovery purpose or they may make a call to recover the password.

8.5 Future Enhancements

8.5.1 Real Time Chatting

Real time chatting is a very popular elements on internet which required a lot of knowledge to implement. However, it is possible to implement chatting in EngAnnWatch.

8.5.2 Online SMS

Online SMS (Short message services) enable users to stay connected with no cost at all. This function also provides user another way to communicate through the mobile phone. For example, in case of happen any emergency; users can use this function to contact their neighbour and friends.

8.6 Summary

Chapter 7 presents the system evaluation in terms of problems encountered and its solutions, system strengths and system constraint. Future enhancements are also included in this chapter so that EngAnnWatch can be further enhanced to provide a better quality system.

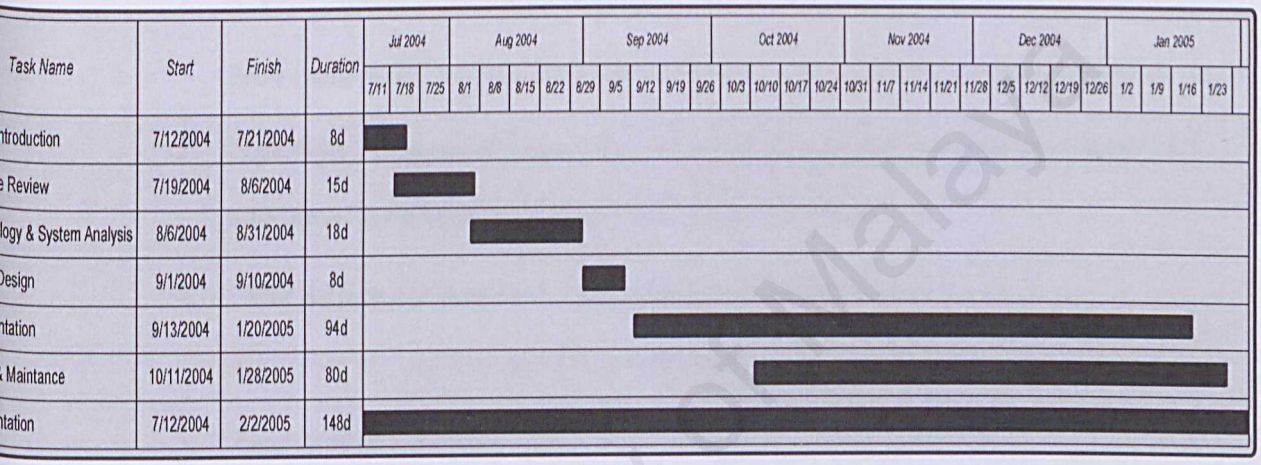
8.7 Conclusion

Overall, EngAnnWatch has achieved the system objectives defined during the analysis stage and fulfilled all the functional and non- functional requirements. Throughout this project, useful knowledge and experience are gained. From the development of EngAnnWatch, time is used to master ASP.NET and more skills which will be important for future web-based applications. Besides that, I also gained a lot of experience in working independently to develop EngAnnWatch. Here, theories and knowledge gained throughout the course of Bachelor of Computer Science studies like system analysis and design, software engineering were literally put into practice.

EngAnnWatch has fully tested and is reliable system. The software engineering concepts, principles and techniques applied in EngAnnWatch are carefully selected and analyzed to determine its suitability. The development of this project using these techniques will ease the tasks of future enhancements and expansions of EngAnnWatch.

APPENDIX

Appendix I: Project Timeline



Task Name	Start	Finish	Duration
ntroduction	7/12/2004	7/21/2004	8d
e Review	7/19/2004	8/6/2004	15d
logy & System Analysis	8/6/2004	8/31/2004	18d
Design	9/1/2004	9/10/2004	8d
ntation	9/13/2004	1/20/2005	94d
& Maintance	10/11/2004	1/28/2005	80d
ntation	7/12/2004	2/2/2005	148d

Appendix II

Reference:

1. Rheingold, Harold. Virtual Community: Homesteading on the Electric Frontier. New York: Addison-Wesley Publishing, 1993.
2. B. Paul (2003) mySociety: e-neighbourhood watch scheme. Retrieved 17 July 2004 from http://mysociety.blogs.com/mysociety/2003/10/eneighbourhood_.html
3. "The New Networked Economy: A Saskatchewan Perspective" Retrieved 25 July 2004 from http://www.tice.ca/images/Part2.pdf
4. "The Research Question" Retrieved 19 July 2004 from http://volatile.org/research/362finalproject.htm.
5. "New weapon against crime" Retrieved 19 July 2004 from http://www.thisisthenortheast.co.uk/the_north_east/archive/2003/05/28/A8b4cn.da.html
6. ("Crime Type Definitions") Retrieved Aug 4, 2004 from http://www.crimestatistics.org.uk/output/page70.asp
7. Taylor, D., Dr. Procter, M.(2004). The Literature Review: A few tips on conducting it. Retrieved 12 August 2004 from http://www.utoronto.ca/writing/litrev.html
8. ("Macromedia Dreamweaver TechNotes: Common question about Dreamweaver MX 2004") 2004, Retrieved 15 August 2004 from http://www.macromedia.com/support/dreamweaver/ts/documents/presalesfaq.htm

9. ("Microsoft Internet Information Services") 2004, Retrieved 15 August 2004 from http://www.microsoft.com/WindowsServer2003/iis/default.mspx

10. Chambers, M. (2002). Macromedia white paper. Macromedia Flash MX security. Retrieved 15 August 2004 from http://download.macromedia.com/pub/flash/whitepapers/security.pdf.

11. Polis Diraja Malaysia (2004). "Jenayah Indeks statistic" Retrieved 26 August 2004 from http://www.rmp.gov.my/rmp03/statjsjindeks97_02.htm

12. USJ18 Neighbourhood Watch (2003). Crime Index 1993-2002. Retrieved 26 August 2004 from http://www.usj18.nwatch.net.my/article.cfm?id=156

13. Bentley, Lonnie D., Whitten, Jeffery L., Dittman, Kevin C. System Analysis and Design 6th edi._New York: McGraw-Hill/Irwin Publishing, 2004. Page 112-119.

14. Walter Maner, 1997. Rapid Application Development – Retrieved 26 August 2004 from http://csweb.cs.bgsu.edu/maner/domains/RAD.htm

15. "The SDLC" Retrieved 26 August 2004 from http://www.johnsmiley.com/mybooks/1902745035/appendixc.htm

16. "Iterative and Incremental Development" Retrieved 26 August 2004 from http://encyclopedia.thefreedictionary.com/Iterative%20and%20Incremental%20development

17. Steve C McConnell, 2001. Rapid Development- Taming Wild Software Schedules – Retrieved 26 August 2004 from http://www.credata.com/research/rad.html

18. Schach, S. R. 2005, Object-oriented & Classical Software Engineering, 6th Edition, McGraw Hill.

19. Kotonya, G. & Sommerville, I. (2003). Requirements Engineering, Process and Techniques. Chichester, England: John Wiley & Sons Ltd.

20. R.Schac, S. (2004) Object-oriented & Classical Software Engineering, Sixth Edition. New York: McGraw-Hill Companies.

21. M. Stair, R. & W. Reynolds, G. (2002). Principles of Information Systems (A Managerial Approach). Australia: Course Technology, Thomson Learning.

22. Prof. Jamo Knuutila (2002). Digital System Design I. Tampere University pf Technology. Syksy 2002 (also available at http://www.tkt.cs.tut.fi/kurssit/8404171/8404171_intro.pdf

23. Bradford D, A.(2002) Software Design Specification. Retrieved 12 September 2004 from http://www.construx.com/survivalguide/desspec.htm

24. Andrew P. C., (2002) Non-functional requirement. Retrieved 12 September 2004 from http://ska.ai-depot.com/paper/node106.html

25. "Object Oriented Software Engineering. Retrieved 12 September 2004 from http://www.site.uottawa.ca:4321/oose/index.html#non-functionalrequirements

26. "Non-functional requirement. Retrieved 10 September 2004 from http://www.iturls.com/English/SoftwareEngineering/SE_32.asp

Appendix III

EngAnnWatch Users' guide

CHAPTER 1 Requirements (Client perspective)

1.1 Hardware requirement

Minimum requirements	Recommended requirement
Processor : 300megahertz or higher clock speed; 233 MHz (single or dual processor system); Intel Pentium/Celeron family, or AMD K6/Athlon/Duron family or any compatible processor	Inter Pentium 3, AMD K6 or above
Memory (RAM): 64megabytes (MB) of RAM	128MB of RAM or higher
Hard disk: any HD space will be supported	1GB
Monitor: VGA (800X600)	Higher resolution video adapter and monitor
Keyboard/mouse or compatible pointing device	Keyboard/mouse or compatible pointing device

1.2 Software Requirement

- Operating systems : WinNT, 95, 98, ME, 2k, Xp, Linux, MAC X and any compatible OS
- Internet Browser: Ms IE ver4 (recommended IE ver6.0), Netscape, Mozilla, Opera etc.

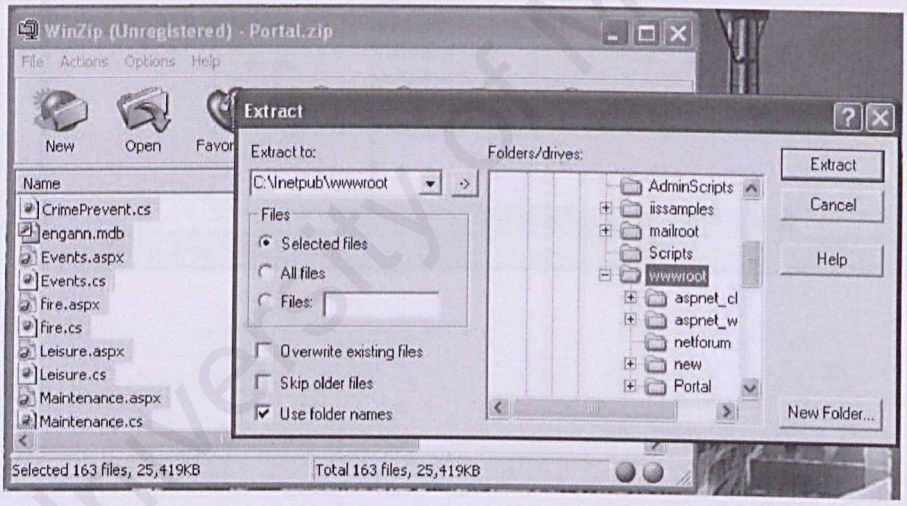
CHAPTER 2 Installation guide (Server perspective)

System Requirements:

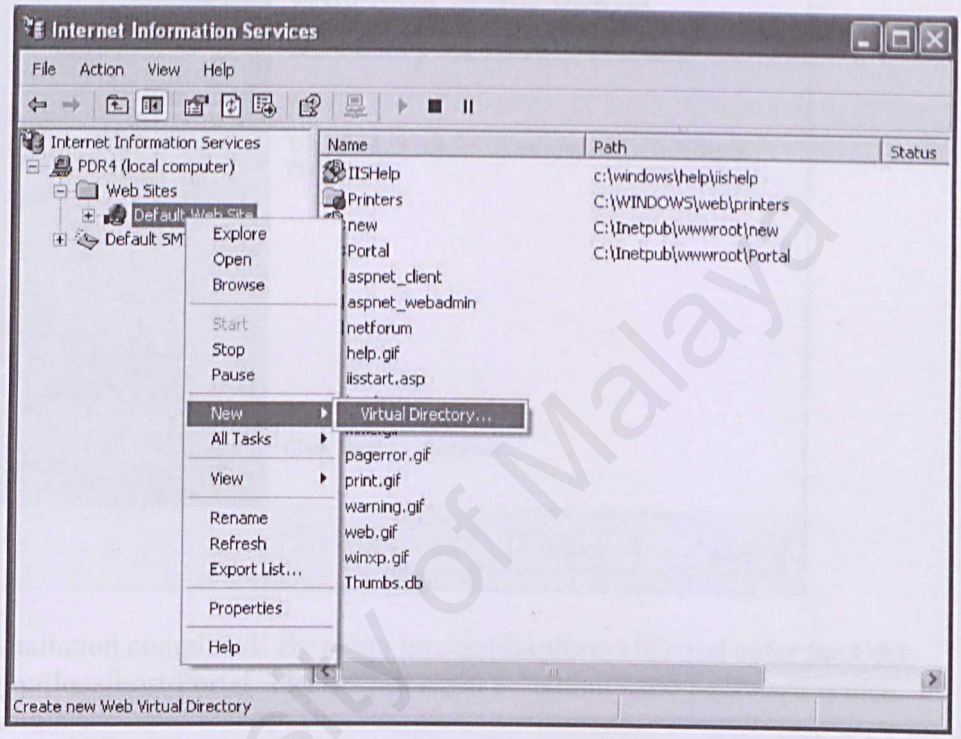
1) Win2k (sp2) / WinXp
2) IIS
3) MDAC 2.7
4) .NET Framework SDK v1 (v1.0.3705)
5) Microsoft IE v6.0
6) Microsoft Excel
7) Microsoft Access

Installation:

1) Unzip the entire file in the CD and extract it into IIS directory (C:\InetPub\wwwroot\). This will automatically create a directory called Portal.

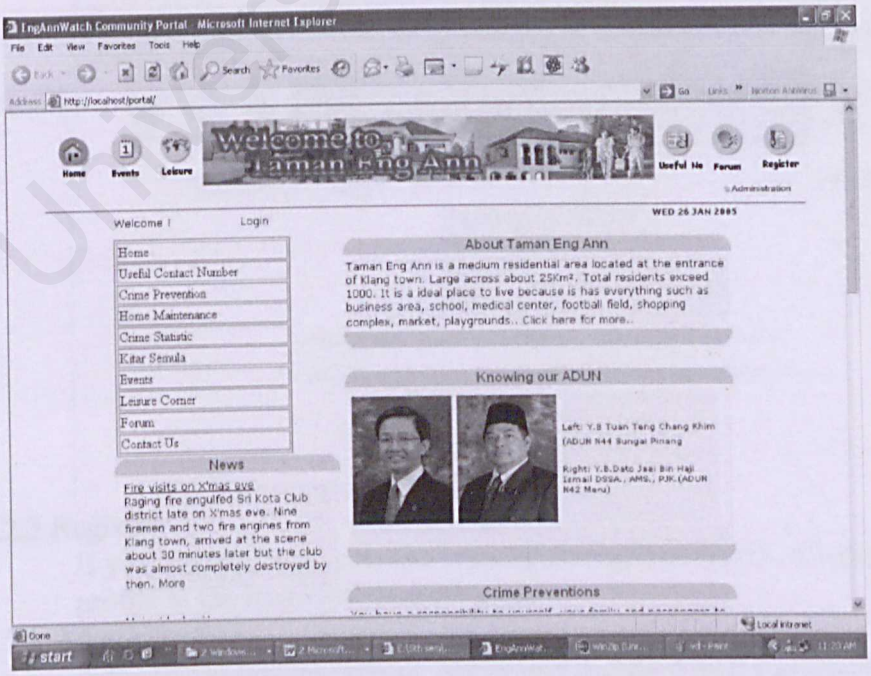


2) Create virtual directory in IIS. Click START > SETTING > CONTROL PANEL > ADMINISTRATIVE TOOLS > INTERNET INFORMATION SERVICES. From the IIS, select "Default Web Site" right click > New > Virtual directory.



3) In the New Virtual Directory dialog, click next, enter Alias as Portal. Then browse the path of the unzipped Portal path (C:\InetPub\wwwroot\Portal). Click Next all the way until it complete.

4) Installation completed! By using Internet Explorer (IE) and enter the URL http://localhost/Portal. The default login is "admin" and password is also "admin".



CHAPTER 3 Using EngAnnWatch

3.1 Contents of EngAnnWatch

EngAnnWatch consist of the following modules:

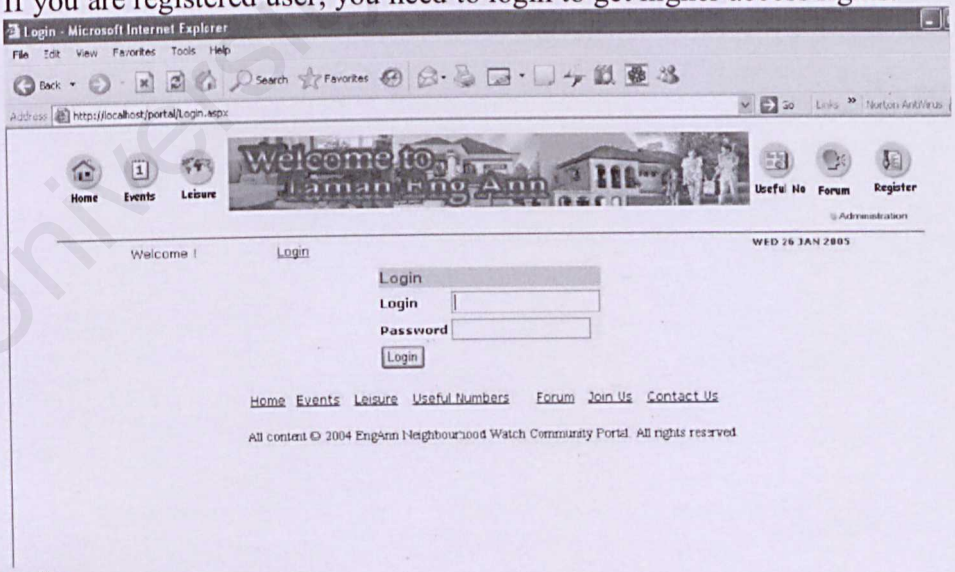
a. Home
b. Useful contact number
c. Crime prevention
d. Home maintenance
e. Crime statistic
f. Kitar semula
g. Events
h. Leisure corner
i. Forum
j. Administration
k. Register
l. Login

Just simply click on the link (the link its in blue color and it will be underlined when mouse move over it). The links are also available in pictures. For login(), register(), forum() and administration() modules will be discussed in detail later.

3.2 Members

3.2.1 Login

If you are registered user, you need to login to get higher access rights.

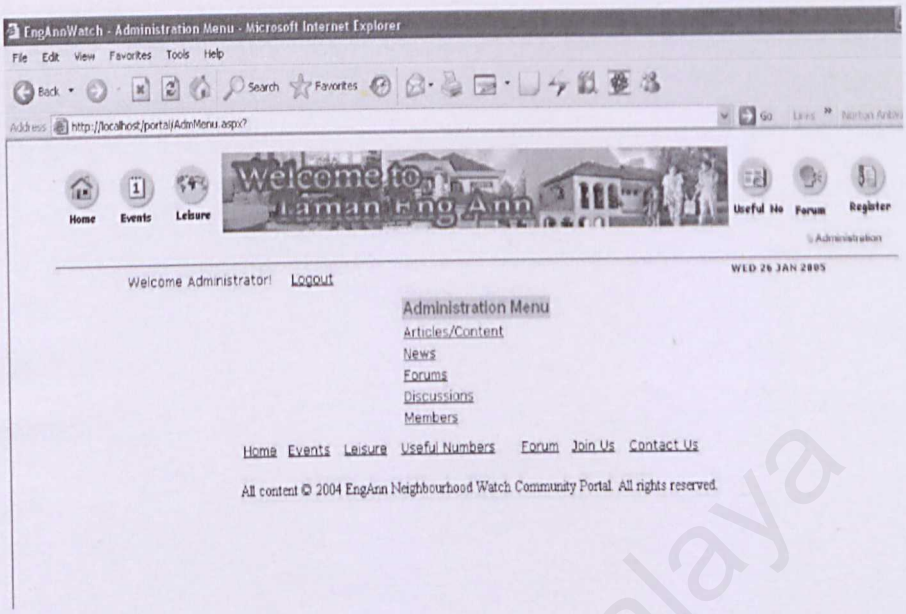


3.2.2 Register

If you are new user, you can register on EngAnnWatch. Simply key in your profile at the Registration.aspx page

3.2.3 Administration

Administration page enable admin of EngAnnWatch edit/monitor/delete/ few modules like Articles, News, Forums, and member status



3.3 Forum

Users no matter Admin, guest, or registered users are able to view, post, reply in forum. Sensitive issues are not allowed and it will be monitored by admin.

3.4 Exit

To exit from EngAnnWatch, just click File > Close or simply click the 'x' on right top of the screen.